

The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1920

DEPARTMENT OF CONSERVATION



BOSTON
WRIGHT & POTTER PRINTING CO., STATE PRINTERS
32 DERNE STREET

PUBLICATION OF THIS DOCUMENT
APPROVED BY THE
SUPERVISOR OF ADMINISTRATION.

The Commonwealth of Massachusetts

DEPARTMENT OF CONSERVATION.

DIVISION OF ANIMAL INDUSTRY,
BOSTON, Nov. 30, 1920.

To the Commissioner of Conservation.

By the provisions of chapter 350, General Acts of 1919, the Department of Animal Industry, organized and existing under authority of chapter 608, Acts of 1912, was placed in the Department of Conservation to serve therein as the Division of Animal Industry. This act went into effect Dec. 1, 1919, and I have the honor to present the following report of the work of this Division for the year ending Nov. 30, 1920.

The functions of the Division of Animal Industry and the duties of its officials may be described as follows: Inspection and examination of horses, cattle, sheep and swine within the Commonwealth, and of the conditions under which they are kept; the execution of measures in prevention, control or cure of contagious disease among them; the slaughter when necessary of such as are affected with, or which have been exposed to, contagious disease, followed by the burial or other disposal of their carcasses; the cleansing and disinfection of districts, buildings or places where contagion exists or has existed. Another duty under the law is the regulation of the shipment of horses, cattle, sheep and swine from other States to Massachusetts, in order that the prevalence of contagious disease may not be further increased by diseased animals from other communities. This regulation necessitates the mallein testing of many horses, and the tuberculin testing of all cattle over six months of age that are not intended for immediate slaughter or are not accompanied by a satisfactory record of test made by a veterinarian approved by the live-stock official of

the State from which they are shipped, and by officials of the United States Bureau of Animal Industry.

Successful dairying, as the production of milk, butter and cheese, the conservation of all kinds of animal food used for human consumption as meat, the commercial business of propagating, feeding and marketing cattle, sheep and swine, and of their by-products, such as leather, wool, fats, fertilizers, and many other articles of commerce, all depend in great degree upon the maintenance of health of those species. Preservation of the health of the people is also dependent in no small degree upon it, as is also fertilization of the soil necessary to successful agriculture.

Healthy live stock being recognized as so indispensable to all of these projects, the prevention, control and eradication of contagious disease among animals is an important public work, far-reaching in its influences, and affecting more or less directly the welfare and material prosperity of all the people.

The work of this Division directly in preservation of the public health lies in the suppression of such animal diseases as are communicable to the human subject, namely, glanders, bovine tuberculosis, rabies, anthrax, actinomycosis, etc. Some of these diseases are rapidly fatal to the human subject, and their transmission readily occurs if circumstances are favorable for it. It is very important, therefore, that this class of diseases be prevented, controlled or, if possible, eradicated from the animal kingdom.

Fertility of the soil is so dependent upon the keeping of live stock that the ratio of general crop production to the number of animals produced, raised and maintained upon our farms is an intimate one. Numbers are largely increased if contagious disease is effectively controlled; therefore, the intimate relation that effective work of this Division bears to successful agriculture may be readily seen.

There is no question as to the greater economy of raising and maintaining only such live stock as can be kept free from contagious disease, for the reason that healthy animals return to their owners a far greater revenue on the investment of time, labor and capital than do those among which disease prevails in any form or in any degree of intensity.

Each succeeding year there is an increased dependence of the public for food material upon domestic animals, as represented not only by dairy products but by meat value of the carcasses of cattle, sheep and swine. That these carcasses may be found fit for human food, it is necessary that the animals shall have been raised under proper sanitary conditions, and maintained free of contagious disease up to the time of slaughter. The carcasses of thousands of animals are yearly condemned on account of lesions of contagious disease being found at time of slaughter. It is an economic necessity of the State and Nation that this great waste be reduced to a lower point than has yet been reached. Although progress in this direction is yearly increasing through the active co-operation of Federal, State and municipal authorities, the Division of Animal Industry recognizes that its work of elimination of animal diseases has a broad field for expansion, and that its duty in relation to increased food supply for the people is well defined.

In accordance with the provisions of chapter 189, General Acts of 1918, this report will consist of a brief summary of the year's work of this Division, illustrated by charts showing the control work of recent years of some of the principal contagious diseases of animals. These charts will probably be of considerable interest to those who have been familiar with the workings of our organization during a period of years. They show the number of cases we have had to deal with, and the working out of policies that have been pursued, with such occasional variations as seemed advisable, for a considerable length of time.

Following is a gross summary of the work of the Division for the year ending Nov. 30, 1920:—

CATTLE.

15,546 Massachusetts cattle were physically examined by Division agents.
1,924 Massachusetts cattle were tuberculin tested by Division veterinarians.

2,855 interstate cattle were tuberculin tested by Division veterinarians.
9,736 tested interstate cattle were examined at Brighton and their test records viséed.

5,247 tested interstate cattle were inspected and identified at other points.

989 animals on 143 farms in 47 towns were given preventive treatment against blackleg.

263 animals on 12 farms in 6 towns were given preventive treatment against anthrax.

43 animals were given preventive treatment against hemorrhagic septicemia.

968 visits to unsanitary premises were made by district veterinarians.

HORSES.

530 tests for glanders were made by Division veterinarians.

4,063 interstate horses were examined by Division veterinarians.

23 tests of whole stables were made by Division veterinarians.

11 animals were given preventive treatment against anthrax.

Dogs.

623 cases of possible rabies in dogs were investigated.

SHEEP AND GOATS.

38 sheep were given preventive treatment against anthrax.

85 goats were given preventive treatment against hemorrhagic septicemia.

SWINE.

51,505 head of swine were treated in prevention or cure of hog cholera.

15,965 head of swine were treated in prevention or cure of hemorrhagic septicemia.

MISCELLANEOUS DISEASES.

685 cases of miscellaneous diseases were investigated by Division veterinarians.

BOVINE TUBERCULOSIS.

The control and eradication of bovine tuberculosis in Massachusetts has for many years been a problem for serious consideration. Cattle owners, whether engaged in dairying alone, the production and marketing of animals for food purposes, or the propagation and sale of pure-bred animals as foundation stock, are all pecuniarily affected by the ravages of this disease, and suffer serious loss in consequence of its continued prevalence.

The dire significance of its possible transmissibility to the human subject may also be referred to as an additional reason for a continuous study of any and all methods of control that promise any degree of success.

The records of the Federal meat inspection service at the many different points in the country furnish the best indication of the prevalence of this disease, the control of which is a nation-wide problem and in no sense a local one. In the country as a whole, thousands of animal carcasses and parts of carcasses are annually condemned at time of slaughter on account of the lesions of this disease being extensive enough to render the meat unfit for human food. While accurate statistics of the number of carcasses of Massachusetts cattle so condemned are not available as a separate unit, no doubt they are of practically the same significance as are those of the country as a whole.

While the number of carcasses condemned at Federal-inspected abattoirs on account of this disease has gradually increased from year to year until recently, it is gratifying to know that for the past three years the number so condemned has shown a considerable decrease. This decrease has been largely due to the more active control work inaugurated by State authorities, and the active movement inaugurated in 1917 by the Federal government looking to eradication as a possibility in the course of time. These activities have been stimulated and seconded by the live-stock industry of the country, all branches of which finally realize the great economic losses caused by tuberculosis of live stock, and the alarming significance of its steady increase from year to year.

In Massachusetts for thirty years its regulatory live-stock officials have been engaged in carrying out such measures in the control of bovine tuberculosis as seemed to promise relief to such conditions of its prevalence as from time to time arose or were apparent. These measures have resulted in more or less success as far as limiting the spread of the disease is concerned. It has been felt, however, that its eradication or complete control, if ever such can be accomplished, will be brought about by nothing less than a nation-wide movement to that end, instituted by Federal authorities co-operating with State officials, and both organizations supported by the live-stock industry in all its branches, and by an aroused public sentiment on the subject of animal food from healthy animals only.

The general policy which has been pursued by the Division

in this work for the past three years is still in operation. This policy briefly stated is as follows: Tuberculin testing of all cattle arriving in Massachusetts from other States not accompanied by approved records of test, followed by slaughter of the reacting animals; annual examination by local inspectors of animals of all Massachusetts cattle and the premises on which they are kept, with a detailed report as to the health of the animals and the sanitary condition of the premises; quarantine of all animals suspected of being diseased, followed by an examination by a Division inspector not only of the suspected animal but of all other members of the herd in which it is found, with the slaughter of such as are found diseased; disinfection of the premises where diseased animals are found and a "follow-up" examination of the herd three months later; the same process of disinfection and re-examination of herd again carried out if additional cases are found; tuberculin testing of herds at request of the owners, under an agreement as to the disposal of the reacting animals.

In our opinion the present Massachusetts plan of searching out and disposing of clinical cases of tuberculosis, thereby removing the most active spreaders of the disease, is one of the most effective methods by which progress in its actual control is accomplished. The diagnostic value of the tuberculin test, carefully applied by competent men, is very generally recognized; it should be taken advantage of at every opportunity for the purpose of disclosing the non-clinical cases. Although not infallible even in the hands of most competent and careful veterinarians, satisfactory control of the prevalence of tuberculosis among our neat cattle is not possible without its aid.

The Division is giving its support to the Federal movement in eradication of bovine tuberculosis, and co-operating with national authorities in this work to the fullest extent possible under existing law.

The most prominent feature of the Federal movement is the "tuberculosis-free accredited herd" plan, upon which plan the movement largely depends for its indorsement by the cattle-owning public. Under this plan certain indemnity is paid for reacting cattle which are slaughtered, the owners of which have submitted their herds for official tests applied under Federal and State

supervision. This payment of indemnity, however, is contingent upon a like indemnity being paid by the State wherein the cattle are owned. Under existing Massachusetts law, indemnity can be paid by the Commonwealth only for cattle which are condemned by Division officials, such condemnation to occur as a result of physical examination, the use of tuberculin as a diagnostic agent being in most cases prohibited. As the majority of cattle reacting to a tuberculin test are not cases that can be readily condemned by physical examination, indemnity for such reactors cannot be paid by the State, and for that reason alone no Federal indemnity is available. The Massachusetts cattle owner, therefore, who desires to eradicate tuberculosis from his herd by slaughter of the reactors to an official test, finds himself denied both State and Federal indemnity as partial reimbursement for his losses, and consequently the work of eradication by the "tuberculosis-free accredited herd" plan has not progressed in this State to the extent it has in most other States of the Union, or to the extent it would if our laws were more favorable to its progress.

Believing that advantage should be taken of every factor which promises to be of any assistance in the eradication of this great scourge of live stock, the undersigned, as a member of a commission created by the Legislature of 1920 to study the situation regarding the prevalence of bovine tuberculosis in Massachusetts, will favor a recommendation for legislation providing for such amendment to our laws as will permit the payment of indemnity, under proper regulation, to owners of cattle whose animals are destroyed on account of having reacted to tuberculin tests applied under official supervision.

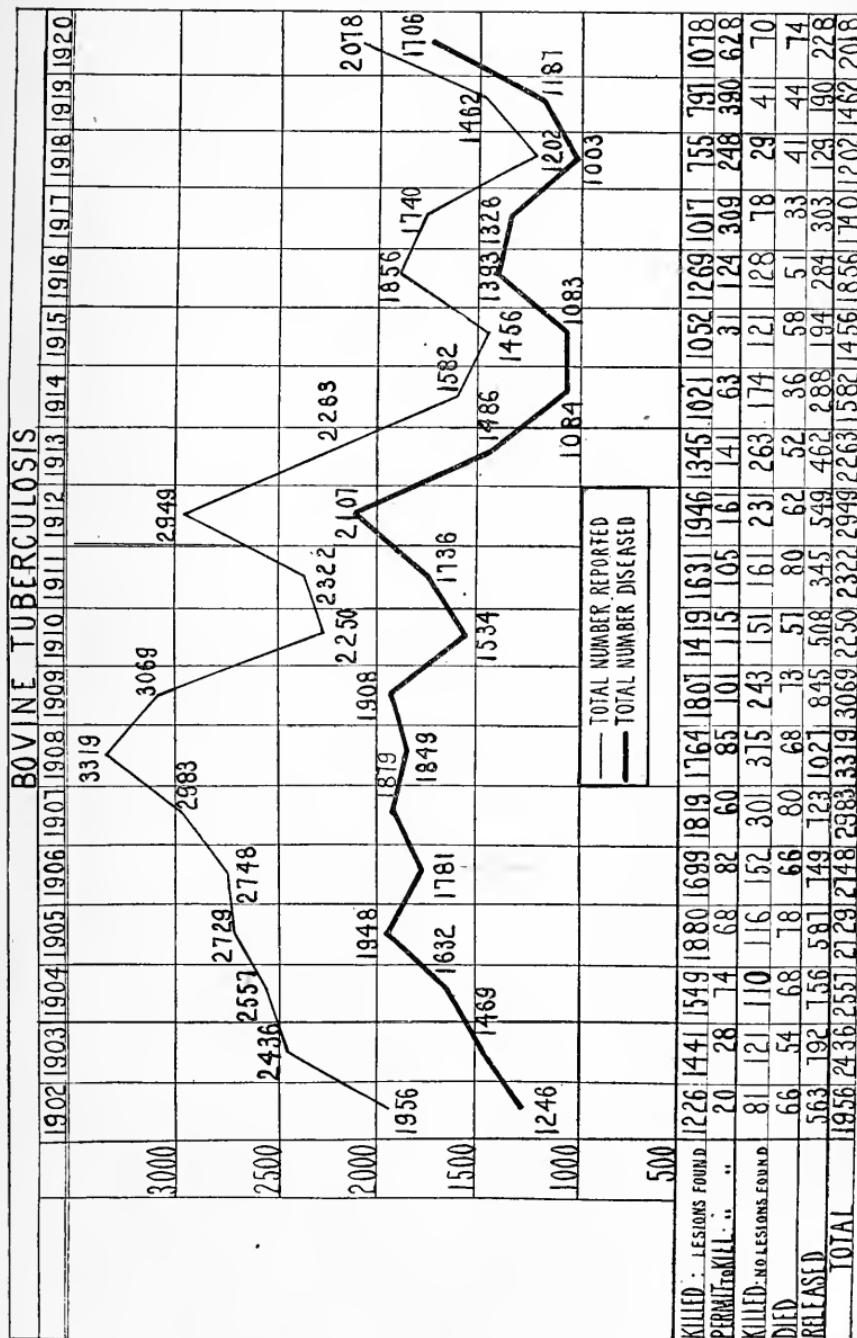
Such legislation will presume, for its proper execution, the expenditure of a considerable amount of money on the part of the Commonwealth. However, considering that such expenditure commands the award of an indemnity by the national government, and that the combined indemnities will be a great inducement to cattle owners to submit their herds for test, the ultimate effect will probably be to so reduce the prevalence of the disease in this State that the large annual appropriations to this Division now necessary for its control will be very much reduced, and ultimately by an amount large

enough to more than offset any appropriations for the execution of a law such as recommended.

Chapter 470, Acts of 1920, entitled "An Act relative to the Indemnity to be paid for Animals because afflicted with Tuberculosis," went into effect Aug. 18, 1920. By the provisions of this act, which is amendatory to section 6 of chapter 90 of the Revised Laws, the maximum amount which the Commonwealth may pay for a tuberculous animal is raised from \$40 to \$60. The immediate effect of this act has been to largely increase the number of cattle reported to this Division as suspected of being affected with tuberculosis. Under the former maximum payment of \$40 it was often to the pecuniary advantage of an owner to send a suspected animal to slaughter without official condemnation, the salvage, in case the carcass was passed as fit for food, being greater than the maximum award by the State. We find now, however, that in many cases the situation is reversed, and, under the amended law, the money returns to the owner from the Commonwealth are greater than they would be from direct slaughter without official condemnation. The record of positive cases of bovine tuberculosis taken care of by this Division will for this reason show a very large increase in numbers this year. We do not believe that this indicates an increased prevalence of the disease, but rather that the amended law and the increasing popularity of the tuberculin test operate to bring more cases to our attention for disposal. We feel that we can in consequence more correctly estimate actual existing conditions of prevalence of this disease than was formerly possible.

Following is a chart showing for a period of nineteen years the number of cases reported to this Division and the number actually found diseased as proved by post-mortem examination, with marginal notes stating the methods of disposal.

This year's tabulation, as shown in the opposite chart, probably more nearly approaches a correct record of the prevalence of tuberculosis in our herds than that of any other one year. In addition to a diligent search for clinical cases as formerly, and the bringing to our attention of many more cases by the operation of the amended law increasing the indemnity payable by the Commonwealth, the tuberculin test reactors appear this



year as a greater factor than ever before in our statistics, constituting a much larger portion of the total number of animals killed.

Comparing the last three years' records, we find the percentage of reactors to total number killed, as follows: 1918, 23.5 per cent; 1919, 28.1 per cent; 1920, 33.4 per cent. In other words, one-third of all the tuberculous cattle killed under our supervision this year were reactors to a tuberculin test and killed for that reason. Practically none of these cases could have been detected by physical examination.

Following are various tables showing the extent of the work of the Division in connection with the control of bovine tuberculosis in Massachusetts for the year ending Nov. 30, 1920:—

Massachusetts Cattle.

Cattle reported as diseased in 1919 disposed of in 1920,	33
Cattle reported as diseased during the year,	2,069
	2,102

Disposal of Above Animals.

	Killed, Lesions found.	Killed, No Lesions found.	Permit to kill, Lesions found.	Permit to kill, No Lesions found.	Died.	Released.	Forwarded to 1921.	Totals.
Reported by inspectors, owners, etc.,	1,070	10	65	30	74	228	17	1,494
Reacted to Division tests,	-	-	245	14	-	-	-	259
Reacted to private tests,	8	-	272	12	-	-	7	299
Reacted to United States tests,	-	-	46	4	-	-	-	50
Totals,	1,078	10	628	60	74	228	24	2,102

The above table shows the disposal of Massachusetts cattle suspected of tuberculosis and reported from all different sources.

Following is a tabulation of tuberculin tests only, made by Division inspectors and reported by private veterinarians, showing also the disposal of such reactors as came under the jurisdiction of the Division and such as could be arranged for by consultation with owners:—

DEPARTMENT TESTS.

Premises on which tests were made,	37
Number of animals tested,	1,924
Number of reactors,	496

Disposal of Reactors.

Killed, lesions found,	203
Killed, no lesions found,	10
Killed by owner, no killing order issued,	3
Awaiting action,	280

NOTE.— In addition to above, 46 animals which reacted in 1919 were killed, in 4 of which no lesions were found.

TESTS REPORTED BY PRIVATE VETERINARIANS.

Number of herds in which animals were reported,	153
Number of animals tested,	3,631
Number of reactors,	758

Disposal of Reactors.

Slaughtered by owner, no record of post-mortem findings,	136
Condemned on physical examination,	8
Killed, lesions found,	247
Killed, no lesions found,	12
Showing no physical symptoms of tuberculosis, no record of disposal,	315
Awaiting action,	40

NOTE.— In addition, 25 animals reacting to test made in 1919 were killed and lesions found.

During the year Division inspectors physically examined 1,310 herds of Massachusetts cattle comprising 15,546 head, of which number 1,380 were killed and found diseased.

Interstate Cattle.

In accordance with present regulations of the Federal government, all dairy or breeding cattle shipped interstate, if over six months of age, must have passed a tuberculin test applied by veterinarians approved by the live-stock officials of the State where tested and by the chief of the Bureau of Animal Industry, United States Department of Agriculture.

A modification of this regulation has, however, been made applicable to cattle shipped to so-called "public stockyards" which are under the supervision of Bureau officials and where the animals can be tested upon arrival. On July 1, 1919, the Brighton cattle market was designated as "public stockyards," and such of the dairy or breeding cattle in the weekly shipments to that point as have not been tested before shipment are tested by inspectors of the Bureau of Animal Industry and of this Division working in co-operation. Check tests are also made from time to time on interstate cattle supposed to have been properly tested before shipment, in order that the quality of this work done in other States may be determined.

Additional quarantine stations for receipt of animals for Brighton market are maintained at Watertown and Somerville, at which points many of the cattle destined for that market are unloaded. The protection of Massachusetts cattle interests at these points is carefully attended to by our force of inspectors, and we feel sure that no cattle which can be suspected of tuberculosis are released for any purpose except for immediate slaughter.

Brighton stockyards being the only point in the State to which untested cattle may be shipped, in strict compliance with Federal regulations, our former work of testing at other points is reduced to a minimum and consists only of testing such animals as may arrive not accompanied by a record of tuberculin test. A few violations of the regulations occur, some of them through ignorance of Federal and State requirements, and others in willful disregard of them. These latter cases are investigated when reported and prosecution in the courts is instituted if deemed advisable.

Following are tabulations showing in detail the interstate cattle work of the Division at Brighton and other points:—

AT BRIGHTON QUARANTINE STATION FROM DEC. 1, 1919, TO NOV. 30, 1920.

Number accepted on approved records of test,	9,736
Number received and tuberculin tested,	2,758
	12,494

Disposal of Above Animals.

Number released on accepted records of test,	9,736
Number released on first test,	2,460
Number released on second test,	85

Number released on third test,	5
Number died awaiting second test,	1
Number released for slaughter on first test,	28
Number released for slaughter on second test,	4
Number condemned on physical symptoms,	1
Number slaughtered on first test, lesions of tuberculosis found,	103
Number slaughtered on second test, lesions of tuberculosis found,	37
Number slaughtered on first test, lesions of tuberculosis not found,	23
Number slaughtered on second test, lesions of tuberculosis not found,	8
Number slaughtered on third test, lesions of tuberculosis not found,	1
Number held awaiting disposal,	2
	— 12,494

AT OTHER POINTS FROM DEC. 1, 1919, TO NOV. 30, 1920.

Number condemned in 1919 awaiting slaughter in 1920,	2
Number held from 1919 awaiting test or other disposal in 1920,	37
Number held from 1919 for retest or other disposal in 1920,	8
Number received during the year,	5,342
	— 5,389

Disposal of Above Animals.

Number released on accepted records of test,	5,247
Number released on test made after arrival,	89
Number reacted and held till 1921 for disposal,	2
Number condemned in 1919, slaughtered in 1920, lesions of tuberculosis found,	2
Number condemned, lesions of tuberculosis found,	4
Number condemned, lesions of tuberculosis not found,	1
Number slaughtered on "permit to kill" warrant, lesions of tuberculosis found,	1
Number slaughtered by owner under Federal supervision, lesions of tuberculosis found,	4
Number slaughtered by owner under Federal supervision, lesions of tuberculosis not found,	3
Number remaining in State temporarily, no test required,	23
Number held awaiting release or test,	13
	— 5,389

SUMMARY.

Total interstate dairy cattle received at Brighton station,	12,494
Total interstate dairy cattle received at other points,	5,389
	— 17,883

Origin of the Above Interstate Cattle.

Vermont,	5,254
Maine,	6,207
New Hampshire,	4,729
New York,	1,040
Connecticut,	173
Rhode Island,	42
Other States and Canada,	438
	— 17,883

Animals other than dairy cattle requiring tuberculin test received at other points than the quarantine stations may be classified as below:—

Cattle not requiring Tuberculin Test.

Cattle for immediate slaughter,	1,916
Calves for immediate slaughter,	2,510
Dairy calves under six months old,	215
Cattle returned from out-of-State pastures,	377
Cattle pastured in the State during the season,	77
Feeder cattle,	72
Lost in mountains,	1
Unloaded for short stay on route through State,	29
Returned from temporary stay in other States for breeding purposes, etc.,	9
Remaining in State for brief periods only, for breeding purposes, etc.,	8
For temporary stay at sales or exhibitions,	843
Total,	6,057

There are large slaughtering establishments at Haverhill, West Newbury and Springfield where Federal inspection of slaughtered animals is maintained, to which points cattle and calves for immediate slaughter may be shipped without special permit, record of which is not kept by this Division. There are on an average several thousand animals shipped to these points annually, and it is estimated that at least 90 to 95 per cent of them come into Massachusetts from other States.

Fourteen permits allowing shipment of cattle into the State were brought over from the previous year, report on them not having been received before the close of that year. There were 1,171 permits issued during the year; on 29 of these no report has yet been received. It was found that cattle were brought in without permits in 146 instances, comprising 996 animals; 571 of these were accompanied by approved records of test; 48 were tested by Division veterinarians; 122 were Massachusetts cattle returned from pastures in other States; 26 were dairy calves under six months old; 28 were feeder cattle; 1 had been out of the State only temporarily; 1 was lost track of; 29 remained in the State temporarily; and 170 head were for immediate slaughter. These figures are all included in the statistical tables.

During the past year Massachusetts cattle owners were not allowed to send their cattle into the State of New Hampshire for pasturage upon certificate of physical examination only, that State requiring that such cattle be tuberculin tested before entering the State in accordance with the regular rules governing the interstate movement of cattle. The State of Vermont has not required the tuberculin test, but has allowed cattle to enter for pasturage only under rigid restrictions, requiring inspection and tagging before entering, and a strict accounting for before leaving the pastures in the fall. The State of New Hampshire takes the larger number of pasture cattle, a few going into Vermont and Maine. The records of this Division show that 99 head of cattle were tagged only, and 595 head were tuberculin tested by Massachusetts veterinarians, to be sent to pasture in other States. When returned to this State such cattle are accepted without further test, provided they can be checked up by their tag numbers.

At a sale of Ayrshire cattle held in Springfield in June, 45 animals came from other States, 17 of them being sold to remain in Massachusetts. At a sale of Hereford cattle in Worcester, which took place in May, 27 head came from out of the State, 15 being sold to remain. At the national Ayrshire sale occurring in Springfield in June, 34 head came from other States, 13 being sold to remain in Massachusetts.

At the Eastern States Exposition held in Springfield in the latter part of September, and a sale of Aberdeen-Angus cattle

held in connection therewith, 667 head were brought from other States, of which number 3 dairy cattle were sold to remain in Massachusetts, and 2 head were sold for immediate slaughter. At this exposition there were 74 exhibitors of cattle, 23 exhibitors of sheep, and 18 exhibitors of swine. There were 896 head of cattle exhibited; there were 39 head of baby beef and Junior Extension Department calves (calves previously given to boys for fattening with the intention of having them exhibited at the exposition), and there were 70 head of nurse cows on the grounds, making a total of 1,005 cattle at the exhibition. There were 395 sheep, 304 head of swine, and 293 horses on the grounds.

In point of numbers this exposition was the largest since the Eastern States began to hold these exhibitions, and the average grade of animals exhibited was the highest.

The Division keeps records of all animals received at the several quarantine stations, also the States from which neat cattle are shipped, as shown by the following figures:—

*Receipts of Stock at the Watertown Stockyards for the Year ending Nov. 30,
1920.*

New Hampshire cattle,	3,559
Vermont cattle,	5,968
Calves,	24,860
Sheep and lambs,	2,106
Swine,	3,353

*Receipts of Stock at the New England Dressed Meat and Wool Company's
Yards at Somerville for the Year ending Nov. 30, 1920.*

Maine cattle,	2,374
New Hampshire cattle,	2,302
Vermont cattle,	7,150
Massachusetts cattle,	1,944
Western cattle,	3,555
Canada cattle,	514
Calves,	90,324
Sheep and lambs,	246,504
Swine,	927,100

Receipts of Stock at Brighton for the Year ending Nov. 30, 1920.

Maine cattle,	8,777
New Hampshire cattle,	8,441
Vermont cattle,	3,091

Massachusetts cattle,	. . . . .	13,168
New York cattle,	. . . . .	11,335
Western cattle,	. . . . .	36,138
Canada cattle,	. . . . .	356
Calves,	. . . . .	80,988
Sheep and lambs,	. . . . .	11,360
Swine,	. . . . .	42,407

GLANDERS.

The prevalence of this disease among the equine species has been satisfactorily controlled during the past year and the number of positive cases found is at nearly the same low figure as during the year 1919. The record for that year was so low that much doubt has since existed as to our ability to maintain it at anywhere near the same point. However, on account of this low record for two successive years we feel still more confident that we are on the way toward total extermination of this disease.

We realize the importance of complete control not only on account of the great economic loss which it causes to owners of the different types of horses used for farm work, general business purposes, exhibition, breeding, and as a means of recreation and pleasure, but also on account of the danger of its communicability to the human subject, nearly always causing death of the person infected.

Although the horse, as an aid to business and as a means of pleasure, has been to a great extent supplanted, he has been shown to be a really indispensable factor in the performance of the world's work, whether in times of peace or in war, and, what is of equally great importance, he is now of priceless value in the field of preventive medicine; that is, in the manufacture of the various sera now used in the prevention and cure of disease, especially in the human subject. He is, therefore, an animal which must still be produced in large numbers, and be maintained free from contagious disease if possible. Consequently we are actively engaged at all times in the suppression of glanders as the one principal disease of a contagious nature that affects horses, mules and asses.

The successful methods by which the number of cases of glanders has been rapidly reduced in the past few years, and which have apparently solved what was formerly a difficult

problem of disease control, may be briefly referred to as follows:—

Immediate quarantine of all reported cases; prompt killing of all clinical cases, followed by disinfection of the premises where kept, of the blacksmith shops where shod, and of watering troughs where they were in the habit of drinking; examination and re-examination of all contact animals, together with application of the several diagnostic tests when necessary; extension of the plan of testing whole stables; closing of public watering troughs in sections where an outbreak of the disease occurs; testing of all horses and mules shipped interstate from New York, New Jersey, Connecticut and Rhode Island, unless accompanied by satisfactory records of recent tests.

The records of the Division for the year ending Nov. 30, 1920, show the following facts:—

At the end of 1919, 8 horses were under observation. Of this number, 1 died and 7 have been released as free from the disease.

During the past year 124 suspected animals, in addition to the 8 mentioned above, have been examined. Of this number, 27 animals proved to be positive cases and were destroyed in accordance with the requirements of the law; 1 was killed by its owner, autopsy proving it to have been a case of glanders; 3 horses were killed at request of owners, post-mortem examination failing to show lesions of glanders; 1 State and 2 interstate horses were condemned and killed, no lesions of glanders being found on post-mortem examination, their full appraised value amounting to \$225; 1 horse died before final diagnosis was made; 87 were released as free from the disease; and 2 were still held under observation at the end of the year.

In the so-called "stable tests," or tests of all animals in stables where glanders has been found, 243 horses have been tested in 23 stables; among them 1 case of glanders was found and 1 horse is still held under observation.

The above figures are all included in the tabulations which follow:—

HORSES REPORTED AS SUSPECTED.

Brought forward from the year 1919,	8
Reported by renderer,	3
Reported by inspectors, Division agents, veterinarians, owners, etc.,	122
Interstate, reported by inspectors,	2
Contact animals examined in stable tests,	243
	— 378

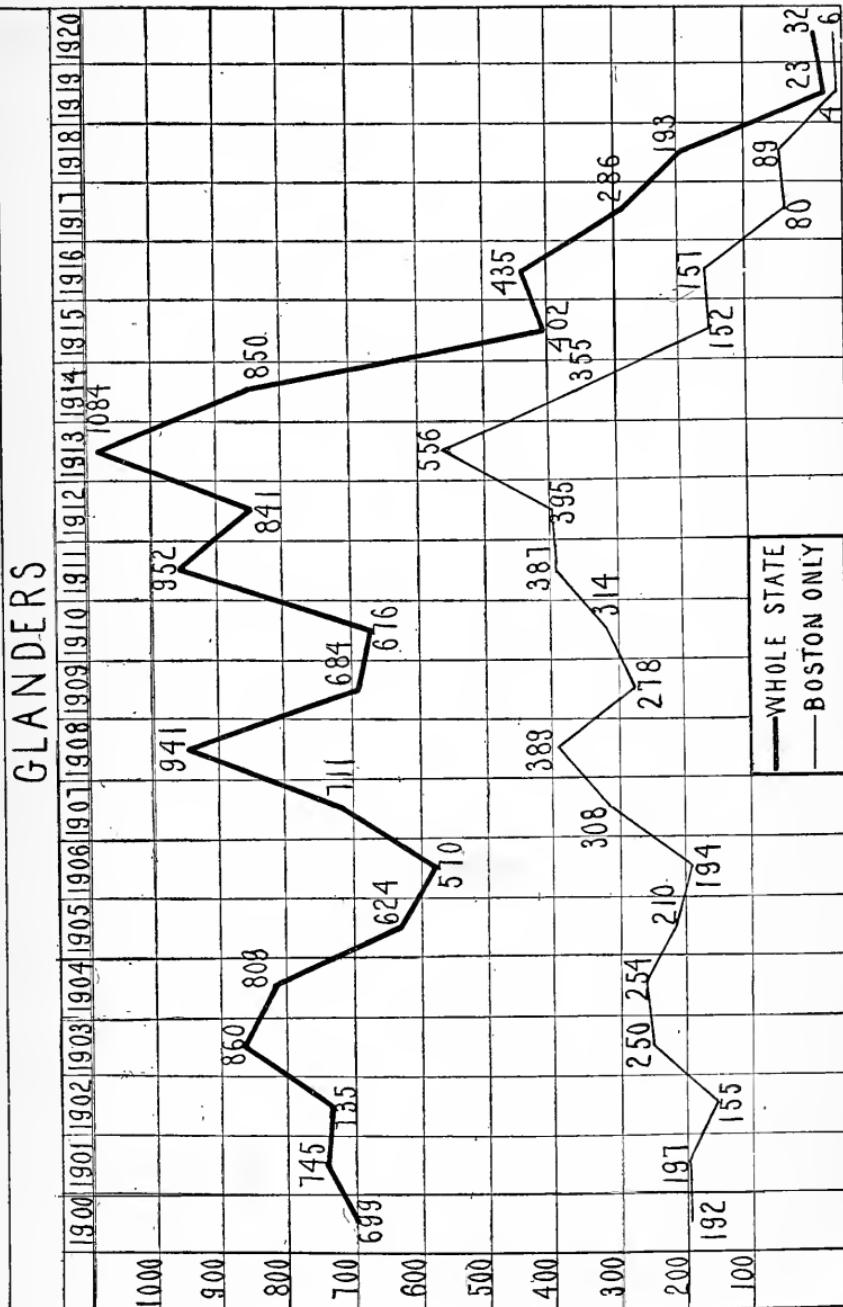
Disposal of Above Horses.

Appraised and killed, positive,	28
Killed by owner, positive,	1
Reported by renderer, positive,	3
	— 32
Killed at owner's request, no lesions found,	3
Appraised and killed, no lesions found (2 interstate, 1 State),	3
Killed by owner or died, no lesions found,	2
Released as not affected with glanders,	335
Awaiting disposition,	3
	— 378

Following is a table giving the number of cases of this disease covering a period of twenty-two years. In this table cases which have occurred in the city of Boston are shown separately, on account of the fact that Boston was for many years the storm center of this disease. Special tabulation of the number of cases in that city has always been made in order that its relative importance to other sections of the State may be studied.

Number of Cases.

YEAR,	CASES.		
	In Boston.	In Other Places.	Totals.
1899,	159	384	543
1900,	192	507	699
1901,	197	548	745
1902,	155	580	735
1903,	250	610	860
1904,	254	555	809
1905,	210	414	624
1906,	194	376	570
1907,	308	403	711
1908,	389	552	941
1909,	278	406	684
1910,	314	362	676
1911,	387	565	952
1912,	395	446	841
1913,	556	528	1,084
1914,	355	495	850
1915,	152	250	402
1916,	157	278	435
1917,	80	206	286
1918,	89	104	193
1919,	4	19	23
1920,	6	26	32



The Massachusetts Society for the Prevention of Cruelty to Animals, the Boston Workhorse Relief Association, the Animal Rescue League, and the branches of these various associations in many cities and towns of the State have through their agents always been of material aid to the Division in the work of controlling this disease. Their close observation of working animals of all classes has in the past, when the disease was more prevalent, brought to light many showing suspicious symptoms, which they have promptly reported to this Division, and many of the animals so reported have proved to be positive cases of the disease.

The constant activity of the humane societies in removing disabled animals from work and destroying those which, on account of extreme age or poor condition, are no longer useful has undoubtedly been a factor in the suppression of glanders, as such animals are very susceptible to infection.

The maximum amount, fixed by chapter 646 of the Acts of 1913, which may be paid for any one animal condemned and destroyed on account of being affected with glanders being \$50, the appraised value of the animals condemned is a subject of considerable interest. Of the 32 positive cases of glanders occurring during the year, 28 were appraised at a total valuation of \$3,370, the average amount per animal being \$120.36. On the remaining 4 animals no appraisal was made for the following reasons: 3 of them were reported by a renderer and 1 was killed by owner, the disease being found on autopsy.

Of the 28 horses which were appraised, 22 have been paid for, the amount paid being \$1,100; in 3 cases there was no award, as the horses had not been in the Commonwealth the required length of time; and 3 cases are awaiting the filing of claims for payment.

Complement-fixation Test.

Of the 8 horses under observation at the end of the year 1919, 2 were released without further test, 1 died, and 5 were subjected to the complement-fixation test, with the result that they were released as probably free from the disease.

Two hundred and twenty samples of blood were taken from

195 horses during the year 1920, and the following disposal of the animals was made:—

Animals held over from 1919, disposed of as above,	5
Animals released on first test,	145
Released on second test,	18
Died or killed by owner after first test,	4
Condemned on first test,	18
Condemned on second test,	2
Condemned on third test,	2
Held for further observation after second test,	1
	195

Ophthalmic-mallein Test.

This test has been applied to 310 State and 619 interstate horses during the year. It happens that the test in some instances was repeated on the same animals, and 938 such tests have been made. The results are as follows:—

Tests giving positive reaction,	13
Tests giving no reaction,	910
Tests giving unsatisfactory results,	15
	938

Interstate Horses.

Horses, asses and mules shipped to Massachusetts from the States of New York, New Jersey, Connecticut and Rhode Island must be accompanied by a permit from the Director of Animal Industry. This regulation was established on account of the prevalence of glanders among the horses of the States mentioned, and in order that upon arrival the animals might be immediately located and examined by agents of this Division.

The number of horses, mules and asses shipped from these States has decreased from 4,168 in the year 1919 to 4,082 in the year ending Nov. 30, 1920, the statistics following:—

EQUINE ANIMALS FROM NEW YORK, NEW JERSEY, CONNECTICUT AND RHODE ISLAND.

Mules,	5
Horses,	4,077
	4,082

Disposal of Above Animals.

Released upon physical examination,	3,442
Released upon accompanying papers without examination,	5
Released after test,	619
Released on route to other States,	14
Reacted to test, killed, no lesions found,	2
	— 4,082

It is worthy of notice that no interstate horses or mules were found during the past year to have been affected with glanders. Many of the animals brought from the above-mentioned States are of the better class, being highly bred horses used for carriage work and breeding purposes. The second-hand horses, which are trafficked in and sent from the markets of one State to those of another for purpose of public sale, have been specially watched on account of their being considered more liable to be subjects of contagious disease than the higher class animals, and if not accompanied by a satisfactory certificate of test have been tested on arrival by inspectors of the Division.

RABIES.

All species of domestic animals are susceptible to rabies, it is readily communicable to man, and a high rate of mortality always follows its development. For these reasons we realize the necessity for close observation on the part of town and State officials charged with its control.

An outbreak in any locality can generally be confined within reasonable limits if there is prompt notification given to local inspectors of animals or to this Division, so that the measures generally recognized as effective in its control may be at once put into operation. In its spread from one locality to another, the dog is *alone* the factor, unless the possibility of its being continuously prevalent, to a greater or less degree, in wild animals is admitted, and that the contagion is readily transmitted to the dog running at large. The ownerless or stray dog is generally the first rabid animal to be found in any community, and the extent to which he may have spread the infection depends on how soon he has been apprehended after he developed the disease. No one being interested in the

whereabouts or physical condition of the ownerless dog, he becomes an active spreader of the disease before attention is centered on him. A more rigid enforcement of the dog laws would be of great assistance in suppressing this troublesome disease.

The quarantining of animals which are found to have been exposed to a suspected or positive case, their confinement and restraint, causes much inconvenience and in some cases considerable expense to their owners. When persons have been bitten by animals positively known to be rabid at the time, or subsequently proved to be infected with the disease, there follows in some instances more or less nervousness on the part of the people; also considerable monetary loss occasionally occurs by the death of valuable dogs or other infected animals.

While dogs are the animals which are principally the victims of this disease, a few cases yearly occur in horses, cattle, sheep, swine or cats, the source of which can generally be traced to the canine animal.

Division records this year show a larger number of cases reported than in any year since 1916, when the lowest prevalence for fifteen years was recorded, since which time there has been a gradual increase in their numbers. It is probable that we have not yet reached the peak of the upward trend of prevalence as yearly recorded, on account of the vast amount of contagion recently existing in near-by States, the invasion of Massachusetts by it having been forecasted in our reports for the past three years.

Local inspectors of animals are familiar with the situation, and those of border towns are specially advised as to the importance of early quarantine, thorough investigation and prompt detailed reports to this office.

Following is a general outline of the Division's present methods in rabies control work:—

Upon report being made to the Division that a person has been bitten by a dog, the inspector of animals of the town or city in which it occurs is ordered to make an examination of the animal, and, even if it appears to be healthy, to have it restrained for a period of fourteen days for the purpose of observation. The restraint for this length of time is deemed necessary for the reason that competent authorities have

shown that in some instances the bite of a dog infected with rabies may communicate the infection fourteen days before the animal shows clinical symptoms. If at the end of this period no symptoms of rabies have developed, the animal may be released. In case a person is bitten by a dog which, upon examination by the inspector of animals or any other person, shows evidence of already being affected with rabies, or there is a history of its having been in contact with a rabid animal, the dog in either case is immediately confined in strict quarantine. If it is subsequently killed or dies, its head is at once sent to the Division's office, and a laboratory examination of the brain is made for the purpose of positively determining whether or not the animal was affected with the disease. Information as to the laboratory findings is promptly communicated to the person or persons who have been bitten. The State Department of Public Health is given the information received in every case of dog bite reported to this office, whether the bite has been inflicted by an animal suspected of rabies or not. We also order the local inspector of animals not only to ascertain the names of all persons who have been bitten by dogs suspected of rabies but to find out if animals have also been bitten, and if so to place the same in quarantine for a period of at least ninety days. All dogs which are found to have been in contact with a rabid animal, whether or not it appears that they have been bitten by it, are also placed in quarantine for the same period.

If an unusual number of cases of rabies is found to exist in any town or city, the selectmen or the mayor or board of aldermen are asked to issue a restraining order, under the provisions of section 158 of chapter 102 of the Revised Laws. Such an order obliges all dog owners to confine their animals to their own premises for a certain period, or take them therefrom only on leash. This restraining order is much more effective in the local control of an outbreak than is an order which compels owners to muzzle the animals only but not restrain them, as a muzzled animal let loose may in some way get the muzzle off and bite other animals or people. A muzzled dog at large may therefore become much more dangerous than an unmuzzled one which is at all times confined upon

owner's premises or taken therefrom only on leash. Dogs found running at large while a restraining order issued by town or city authorities is in force may be killed on the issuance of a warrant for the same to a police officer. It was found advisable to ask for general restraining orders in fifteen towns of the Commonwealth during the past year. These orders were for periods of ninety days.

Our force of district agents, all of whom are veterinarians and located in different parts of the State, together with the local inspectors of animals, of whom there is one or more in every city and town of the State, constitutes an organization by which systematic local control of an outbreak of this disease can generally be accomplished within a reasonably short time.

During the year ending Nov. 30, 1920, 769 animals were reported to the Division for diagnosis, observation or quarantine on account of the prevalence of rabies, and 28 were brought forward from the year 1919. The records have been classified as follows: —

Animals suspected of rabies, primary cases,	171
Animals exposed to rabies (26 reported in 1919, 385 in 1920), . . .	411
Animals which have inflicted bites upon persons (2 reported in 1919, 213 in 1920),	215

Animals suspected of Rabies, Primary Cases.

	Dogs.	Cattle.	Cats.	Swine.
Diagnosis positive,	121	3	1	-
Diagnosis negative,	34	-	1	1
Diagnosis questionable,	8	-	1	1

Animals exposed to Rabies.

	Dogs.	Cattle.	Cats.	Swine.	Horses.	Drake.
Number released after a quarantine of ninety days.	148	36	2	102	4	1
Number killed, no symptoms having developed.	42	-	4	-	-	-
Number killed, positive symptoms having developed.	34	5	-	6	1	-
Number still held under observation,	25	-	-	-	1	-

Animals which have inflicted Bites upon Persons.

	Dogs.	Cats.
Number killed during quarantine, no symptoms having developed.	27	3
Number killed, no examination,	4	-
Number released after fourteen days' quarantine,	178	1
Number still held under observation,	2	-

Of the 28 animals which were under observation at the close of the year 1919, 27 were released, no symptoms of rabies having developed. One, a horse, developed symptoms of the disease five months after contact with a rabid dog, and was killed.

The questionable cases given in the preceding table may be briefly referred to as follows: 3 dogs were killed by police officers, showing symptoms which they considered suspicious; 1 dog was found dead, 2 were killed, and 1 pig was killed, laboratory examination in all 4 cases being unsatisfactory; 1 dog was chloroformed by its owner, having shown suspicious symptoms; 1 dog, which had probably been exposed, disappeared; and in case of 1 cat no laboratory examination was made.

During the past year the Division received reports of 296 persons having been bitten by dogs, and 5 persons having been bitten by cats. Sixty-two of these persons were bitten by 26 of the dogs classified in the tables as positive cases. In all cases of dog bite which are reported, the dog is immediately quarantined for observation except in cases where the animal is immediately killed. Of the cases of dog bite reported, 231 were inflicted by dogs proved not to be affected with rabies. One case was that of a dog on which laboratory examination was questionable, and 2 cases of bite were by dogs which are still in quarantine for observation.

All persons bitten were officially notified of the results of laboratory examination of the brains of the rabid animals. Prompt notice was also given the State Department of Public Health, and it is probable that in many cases where examina-

tion gave positive results, the Pasteur treatment in prevention of rabies was administered to the persons bitten, either under supervision of health officials or by private physicians. Six dogs bitten by rabid animals were also given antirabic treatment.

It is deemed advisable, in all cases where possible, that the heads of animals supposed to be affected with rabies should be examined at the laboratory in order to confirm diagnosis. During the past year laboratory examination has been made of the brains of 149 dogs, 3 cats, 7 swine and 4 cattle. Of this number, 93 dogs, 5 swine and 4 cattle showed positive evidence of the disease.

Of the 769 animals reported for observation, diagnosis or quarantine during the year, 48 dogs were, as far as could be ascertained, ownerless and unlicensed, 29 of which proved to be positive cases of the disease.

One dog which was killed in April on account of being affected was known to have been bitten in August of 1919.

In another case, the disease developed 83 days after the animal was bitten.

A dog was killed in Townsend, Vt., in February, having traveled there from Ashby, Mass., a distance of approximately 100 miles. This dog prior to leaving Ashby was known to have bitten a dog at the same premises, which latter dog developed rabies in June.

In 1 case which proved to be rabies the dog had been brought into Massachusetts from Kansas City, Mo., a few weeks before the development of the disease. Upon inquiry it was found that rabies was very prevalent in that city about that time.

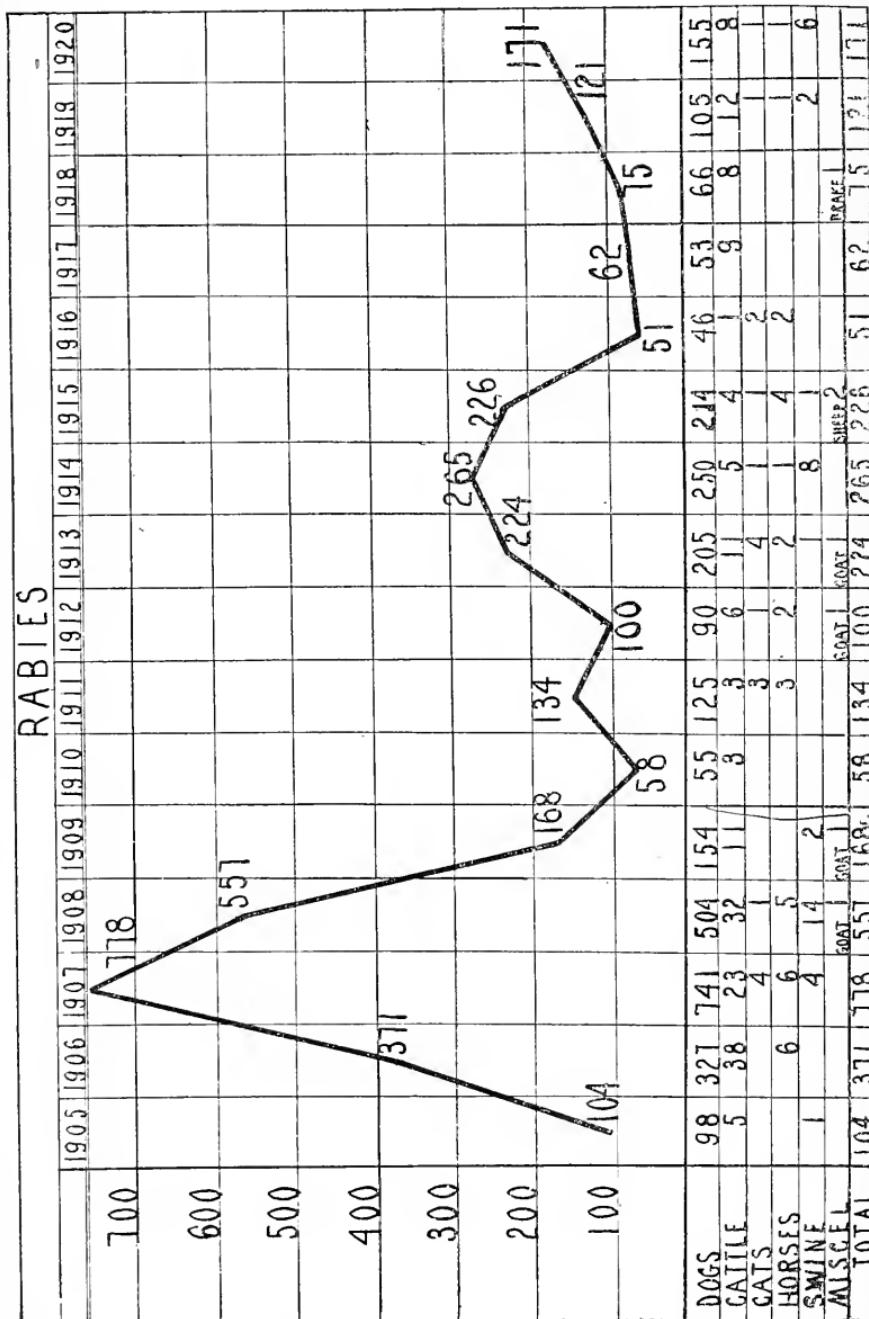
In one instance a Great Dane dog ran through five different towns, and was known to have come in contact with 12 other dogs, which were immediately quarantined, 5 of which later developed the disease.

The following table shows the number of positive cases of rabies by cities and towns:—

CITY OR TOWN.	Dogs.	Cattle.	Horses.	Pigs.	Cats.
Arlington,	2	-	-	-	-
Ashby,	1	-	-	-	1
Athol,	1	-	-	-	-
Attleboro,	3	-	-	-	-
Barnstable,	1	-	-	-	-
Berkley,	2	-	-	-	-
Bolton,	2	-	-	-	-
Boston (Hyde Park 1, Roxbury 2),	3	-	-	-	-
Boylston,	1	-	-	-	-
Brockton,	10	-	-	-	-
Canton,	1	-	-	-	-
Dartmouth,	1	-	-	-	-
Dedham,	4	-	-	-	-
Douglas,	1	-	-	-	-
East Bridgewater,	2	-	-	-	-
Easton,	2	-	-	-	-
Fall River,	20	-	-	-	-
Fitchburg,	1	-	-	-	-
Foxborough,	-	1	-	-	-
Franklin,	1	-	-	-	-
Freetown,	1	-	-	-	-
Grafton,	1	-	-	-	-
Hanover,	3	-	-	-	-
Hopedale,	1	-	-	-	-
Hopkinton,	4	-	-	-	-
Lancaster,	2	-	-	-	-
Leicester,	1	-	-	-	-
Mansfield,	3	-	-	-	-
Medfield,	6	-	-	-	-
Medway,	1	-	-	-	-
Mendon,	1	-	-	-	-
Middleborough,	1	-	-	-	-
Millbury,	2	-	-	-	-
Millis,	3	-	-	-	-
Milton,	1	-	-	-	-
Needham,	3	-	-	-	-
New Bedford,	1	-	-	-	-
Newburyport,	1	-	-	-	-
Paxton,	1	-	-	-	-
Plainville,	-	1	-	-	-

CITY OR TOWN.	Dogs.	Cattle.	Horses.	Pigs.	Cats.
Rehoboth,	1	-	-	-	-
Royalston,	1	-	-	-	-
Seekonk,	3	2	-	1	-
Sharon,	2	-	-	-	-
Somerset,	1	-	-	-	-
Stoughton,	1	-	-	-	-
Sutton,	1	-	-	-	-
Swansea,	4	-	-	5	-
Taunton,	16	-	1	-	-
Uxbridge,	1	-	-	-	-
Walpole,	3	-	-	-	-
Wayland,	1	-	-	-	-
Webster,	2	-	-	-	-
Wellesley,	1	-	-	-	-
Westborough,	1	-	-	-	-
West Boylston,	1	-	-	-	-
Westminster,	1	-	-	-	-
Weston,	1	-	-	-	-
Westport,	8	4	-	-	-
Westwood,	2	-	-	-	-
Weymouth,	1	-	-	-	-
Worcester,	3	-	-	-	-
Wrentham,	3	-	-	-	-
Totals,	155	8	1	6	1

Following is a chart showing the proved cases of rabies in the several species of animals covering the period from 1905 to 1920, inclusive.



HOG CHOLERA.

The reports from our annual inspection show that the number of swine found on the farms this year has reduced from 108,108, last year's record, to 100,982, a reduction of approximately 7,500 head, or 7 per cent. This is a much smaller decline than had been forecasted, but undoubtedly it will still further continue unless market conditions change for the better.

During the progress of the World War, when an increased production in this country of all kinds of animal products used for food became a vital necessity in order that the world supply of food might be maintained, the raising of swine was rapidly taken up by many people not previously engaged therein. They did this in many instances from patriotic motives alone, and the number of animals raised in one or two pig lots was larger by thousands than one would estimate. During these war years, therefore, the number of swine raised in the State was far beyond the average, but soon returned to normal when the stimulus of war conditions ceased to be operative.

Certain other conditions have this year operated to largely reduce the number of swine in the State. The high price of feed of all kinds continuing for the greater part of the year, during all of which time the market price of live hogs has steadily declined, are two conditions very discouraging to the swine owner who may be raising hogs for the market as a business project. For these reasons alone many persons formerly engaged in that business have suspended operations until market conditions shall have become more favorable. We consequently find this year that numbers of swine in the State have largely reduced, and that the average amount of contagious disease prevalent has declined in proportion.

The Division's work in prevention of disease in swine, which was commenced in 1914, was undertaken primarily on account of the existence of hog cholera, which disease prevailed to such an extent and carried such a high mortality rate that the raising of swine in any considerable numbers was a very un-

certain enterprise, especially so if their principal food was garbage, a proved carrier of this contagion.

Although it had been shown that garbage contained all the food elements necessary to proper growth of swine, and furthermore that in many communities it was a complete waste, not utilized in any economic way whatever, yet many were deterred from using it as a food for swine on account of what was a common experience, namely, an outbreak of hog cholera, which in many instances destroyed a whole herd.

The raisers of pure-bred swine also found the chances in their business greatly increased by the danger of this contagion, even though garbage was not fed.

For seven years the Division has been engaged in the immunization of swine against this scourge, with the result that the production and successful raising of this species on garbage as a food has been rendered a safe project, and the foundation stock as represented by pure-breds has been protected against a serious danger. The only thing necessary to success in all instances is the immunization of the animals while healthy, not waiting until the disease has appeared before applying for our service. The treatment is specifically in prevention of disease and is not a curative. While we always endeavor to save the animals which are sick, more or less deaths are bound to occur when the disease is actually present in the herd.

The objective striven for during the past seven years by the Division of Animal Industry's work in this line has already been reached, and we now unhesitatingly refer to it as a public sanitary control service of much importance, of great value to the live-stock industry, and a work directly in conservation of the people's food supply.

Following is a list of cities and towns in which hog cholera prevention work has been carried on during the year ending Nov. 30, 1920:—

CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
Abington, .	2	20	40	60
Acton, .	1	4	8	12
Adams, .	2	40	0	40
Agawam, .	7	114	58	172
Amesbury, .	1	3	1	4
Amherst, .	5	138	19	157
Andover, .	4	39	5	44
Arlington, .	1	6	6	12
Ashburnham, .	2	2	0	2
Ashland, .	1	2	1	3
Athol, .	2	10	19	29
Attleboro, .	3	109	60	169
Auburn, .	18	80	86	166
Ayer, .	2	287	460	747
Barnstable, .	5	57	57	114
Barre, .	1	0	13	13
Becket, .	1	9	0	9
Belmont, .	4	690	634	1,324
Berlin, .	3	9	0	9
Beverly, .	1	118	11	129
Billerica, .	2	13	11	24
Bolton, .	2	19	0	19
Boston, .	7	675	577	1,252
Bourne, .	1	28	6	34
Brantree, .	4	73	89	162
Bridgewater, .	1	257	154	411
Brockton, .	5	639	718	1,357
Brookfield, .	3	80	8	88
Brookline, .	2	28	10	38
Burlington, .	3	919	1	920
Canton, .	2	58	57	115
Charlton, .	1	40	20	60
Chelmsford, .	3	36	0	36
Cheshire, .	1	7	0	7
Chester, .	1	19	1	20
Chicopee, .	24	293	104	397
Clarksburg, .	1	6	0	6
Clinton, .	14	83	20	103
Cohasset, .	1	2	23	25
Concord, .	5	141	55	196
Dalton, .	1	170	84	254
Dana, .	1	4	0	4
Danvers, .	1	239	186	425
Dartmouth, .	3	79	42	121
Dedham, .	4	62	14	76
Deerfield, .	3	23	0	23
Dover, .	3	69	27	96
Dracut, .	1	7	0	7
Easthampton, .	9	29	23	52
East Longmeadow, .	6	43	50	93
Easton, .	2	12	8	20
Enfield, .	1	1	0	1
Fairhaven, .	6	13	20	33
Fall River, .	2	3	13	16
Fitchburg, .	23	454	287	741
Foxborough, .	2	80	186	266
Gardner, .	19	219	263	482
Gill, .	2	32	37	69
Gloucester, .	7	382	198	580
Grafton, .	6	171	186	357
Granby, .	1	9	0	9
Greenfield, .	4	163	60	223
Greenwich, .	1	0	25	25
Groton, .	1	6	6	12
Hadley, .	2	5	6	11
Hampden, .	2	17	0	17
Hancock, .	1	6	0	6
Hanover, .	1	0	8	8
Hanson, .	1	9	0	9
Hardwick, .	2	16	6	22
Harvard, .	4	21	0	21
Harwich, .	1	2	0	2

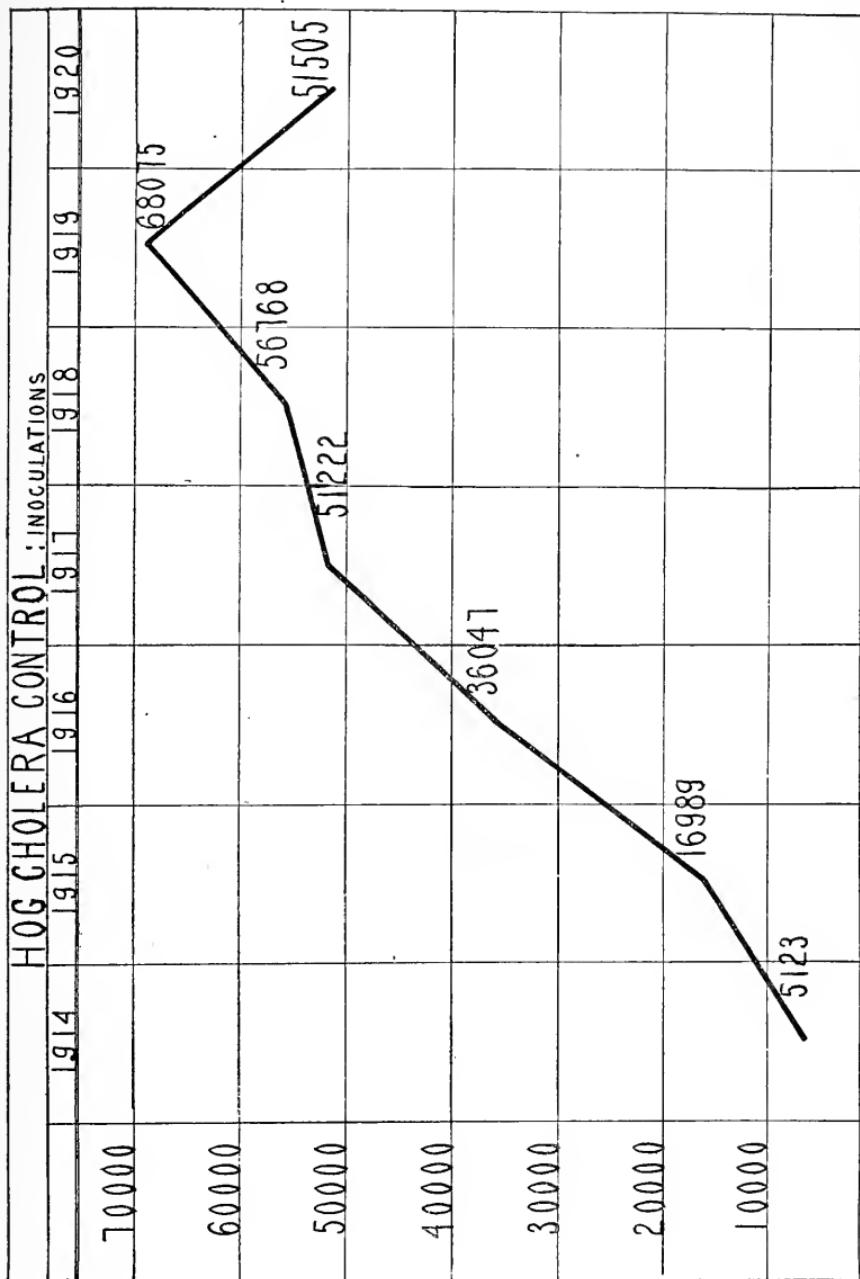
CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
Haverhill, .	4	73	11	84
Holden, .	3	27	17	44
Holliston, .	1	17	0	17
Holyoke, .	10	205	105	310
Hudson, .	2	17	0	17
Huntington, .	1	7	0	7
Ipswich, .	4	49	143	192
Kingston, .	1	1	0	1
Lakeville, .		124	286	410
Lancaster, .	8	34	8	42
Lanesborough, .		1	2	14
Lawrence, .	3	44	66	110
Lee, .	4	15	10	25
Leicester, .	2	28	32	60
Lenox, .	1	58	17	75
Leominster, .	1	113	109	222
Lexington, .	17	2,420	1,466	3,886
Lincoln, .	9	363	130	493
Littleton, .	2	91	98	189
Longmeadow, .	4	454	352	806
Lowell, .	3	195	255	450
Ludlow, .	6	368	234	602
Lunenburg, .	2	138	39	177
Lynn, .	2	43	14	57
Malden, .	2	7	10	17
Manchester, .	4	50	20	70
Marblehead, .	10	195	78	273
Marion, .	1	15	54	69
Marlborough, .	2	15	9	24
Mattapoisett, .	2	9	1	10
Medfield, .	2	176	131	307
Medford, .	2	10	0	10
Medway, .	3	6	1	7
Melrose, .	1	2	0	2
Methuen, .	2	12	9	21
Milford, .	6	36	61	97
Millbury, .	5	113	115	228
Milton, .	3	167	118	285
Monson, .	1	33	66	99
Nantucket, .	8	15	7	22
Natick, .	7	239	180	419
Needham, .	10	498	413	911
New Bedford, .	2	83	151	234
Newbury, .	3	13	0	13
Newburyport, .	22	68	47	115
Newton, .	3	94	20	114
North Adams, .	4	398	210	608
Northampton, .	15	364	184	548
North Andover, .	1	3	0	3
North Attleborough, .	3	103	99	202
Northbridge, .	5	64	80	144
Northfield, .	3	217	75	292
North Reading, .	2	101	131	232
Norton, .	2	36	30	66
Norwood, .	2	9	70	79
Orange, .	2	7	4	11
Oxford, .	2	57	58	115
Palmer, .	1	46	9	55
Paxton, .	2	34	78	112
Peabody, .	10	470	277	747
Pepperell, .	1	3	0	3
Pittsfield, .	29	680	340	1,020
Plymouth, .	5	148	246	394
Princeton, .	2	11	6	17
Provincetown, .	40	83	5	88
Quincy, .	1	0	20	20
Randolph, .	2	17	27	44
Reading, .	2	7	12	19
Rehoboth, .	1	4	1	5
Revere, .	6	1,101	788	1,889
Rockport, .	3	30	9	39
Rowley, .	2	11	0	11

CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
Russell,	1	6	0	6
Rutland,	3	57	75	132
Salem,	5	192	116	308
Salisbury,	2	5	1	6
Sandwich,	1	0	5	5
Saugus,	9	95	146	241
Seekonk,	12	650	475	1,125
Sharon,	4	0	12	12
Shelburne,	1	1	7	8
Sherborn,	3	62	45	107
Shirley,	1	125	142	267
Shrewsbury,	2	143	218	361
Somerset,	1	0	2	2
Somerville,	1	15	0	15
Southborough,	4	19	8	27
Southbridge,	3	0	20	20
South Hadley,	6	99	47	146
Spencer,	1	4	0	4
Springfield,	36	1,613	653	2,266
Stoneham,	1	14	0	14
Stoughton,	8	48	26	74
Sturbridge,	1	1	0	1
Sudbury,	1	52	2	54
Sunderland,	6	25	0	25
Sutton,	1	1	0	1
Swampscott,	1	29	6	35
Swansea,	5	1,606	708	2,314
Taunton,	5	275	198	473
Templeton,	7	20	63	83
Tewksbury,	1	171	150	321
Townsend,	8	16	14	30
Tyngsborough,	1	14	55	69
Uxbridge,	1	11	21	32
Wakefield,	5	7	0	7
Walpole,	1	0	8	8
Waltham,	16	1,540	1,196	2,736
Watertown,	3	200	161	361
Wayland,	1	2	0	2
Webster,	11	27	23	50
Wellesley,	2	33	18	51
Wenham,	2	27	8	35
Westborough,	3	191	133	324
Westfield,	8	57	87	144
Weston,	4	56	49	105
Westport,	1	3	0	3
West Springfield,	5	32	20	52
Westwood,	3	261	361	622
Weymouth,	5	3	53	56
Whately,	3	10	2	12
Wilbraham,	2	38	8	46
Williamstown,	1	9	0	9
Wilmington,	5	3	24	27
Winchendon,	7	46	46	92
Woburn,	8	180	171	351
Worcester,	20	3,822	2,729	6,551
Wrentham,	2	111	202	313
Totals,	874	30,280	21,225	51,505

The preceding table shows that work has been done in 200 cities and towns this year, 32 less than during 1919, but necessitating 1,675 visits by one or more inspectors. In addition there were 73 visits made to places where the swine were not treated for the following reasons: the animals in some instances had no chance of recovery; in others the trouble was

found to be some non-contagious infection; again in some of the cases proper sanitary conditions necessary to successful work could not be established; and in a few cases the owners did not desire to have the animals treated.

The chart on the opposite page shows in a general way the hog cholera prevention work from the time of its inception to the present, and comparative statistics in detail are shown in tables which follow it.



Comparative Statistics on Hog Cholera Control Work for 1914, 1915, 1916, 1917, 1918, 1919 and 1920.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Outbreaks reported in which a negative diagnosis was made,	20	122	57	42	39	54	41
Number of herds known to be infected,	80	227	253	359	232	184	89
Number of herds known to be infected in which serum treatment was not administered. ¹	-	77	43	77	75	35	42
Number of infected herds in which serum treatment was administered,	65	150	192	282	157	149	47
<i>Herds infected at the Time Treatment was administered.</i>							
Number of "serum only" treatments, including those administered to infected animals and to those too young for simultaneous treatment, Mortality from hog cholera following "serum only" treatment (per cent), ²	428	10,300	14,747	24,828	7,559	3,076	5,813
Number of simultaneous treatments. These were administered to animals apparently healthy at time of treatment. Mortality from hog cholera following the simultaneous treatment in infected herds (per cent). ²	591	5,826	13,643	15,524	4,055	1,282	6,393
Total number of treatments administered in infected herds,	1,019 ³	16,126	28,390	40,352	11,614	4,358	12,206
Total mortality following both "serum only" and simultaneous treatment in infected herds (per cent). ²	5.2	4.9	2.21	1.24 ⁴	3.34	4.5	.78

Preventive Inoculation in Apparently Healthy Herds.

Number of herds,	.	.	.	.	.	.	.	.	2	95	113 ⁶	470 ⁶	1,275	1,440	785
Number of inoculations,	.	.	.	.	.	.	.	.	104	863	7,657	10,870	44,754	63,717	39,299
Number of animals which died following simultaneous inoculations,	.	.	.	.	.	.	.	.	0	1	0	3	8 ⁶	42 ⁶	51
Total number of inoculations,	.	.	.	.	.	.	.	.	5,123	16,989	36,047	51,222	36,768	68,075	51,505

¹ Due to animals being too sick to treat, showing symptoms of secondary infection, or to owners not desiring the same.² These figures show percentages, not animals.³ Plus 4,000 which were treated, and died or were killed before results could be ascertained. These deaths were due to the use of serum which was impotent and virus which was not virulent, before the present regulations were made.⁴ This does not include approximately 50 animals which died on one farm, on which a final diagnosis was not made. Clinically and by autopsies, it was impossible to determine whether the disease was hog cholera or hemorrhagic septicemia. Laboratory examinations indicate the latter, but before the work could be completed the losses stopped, and more material which was needed for a final diagnosis was not available.⁵ The large majority under this classification are herds which in previous years were classified as infected herds and which had yearly sustained heavy losses from hog cholera. The majority of them are garbage-fed, and experience shows that should treatments be discontinued an outbreak of hog cholera would follow very closely. They are therefore classified as herds in which no infection was apparent at the time of treatment, whereas in reality they are infected herds in which the disease is kept completely under control while treatments are continued.⁶ None of these animals were autopsied; consequently, we are unable to say whether or not death was due to cholera.

The preceding chart and tables of comparative statistics relating to our hog cholera control work show the following facts which should be briefly referred to:—

Very many less treatments with anti-hog cholera serum or hog cholera virus, applied either as "serum only" or "simultaneous" treatment, have been called for this year than during the year closing Nov. 30, 1919. In our opinion, this indicates an improvement in the general situation this year as to prevalence of the contagion. A similar diminution of cases has been reported to be the situation in all other sections of the country, 1920 being referred to as a "low year" as to incidence of the disease.

The tables also show that the number of herds positively known to be infected at time of treatment is lower this year than during any of the previous *five* years, and this decrease in number of infected herds is so very marked that it must be considered another very strong indication of improvement in the general situation.

Finally, the mortality rates, as shown in the statistics of work done in these infected herds, are so low as to merit particular attention, even in comparison with our own records of previous years. It may be said in passing that Massachusetts records in this particular, and in comparison with those of other sections of the country, have always commanded special attention and have brought forth much commendation as indicating a high quality of work done.

The sanitary conditions under which swine are kept, while found to be somewhat improved from year to year, are nevertheless far from what they ought to be. We have found in many instances where serious losses of animals have occurred that the primary causative factor has been unsanitary or poor housing conditions, which have lowered the vitality and the normal resistance of the animals to disease, allowing bacterial invasion a favorable opening. Such conditions also seriously handicap recovery from disease and delay the elimination of infection. While perfect sanitary conditions are hard to obtain in piggeries as generally managed, yet very great improvement can be made on many premises and would be followed by results which undoubtedly would be evident in more pigs, healthier pigs, and consequently a better financial showing.

At the present time the diseases of swine are probably receiving more attention on the part of swine raisers, veterinarians, live-stock sanitary officials and those engaged in scientific research than at any period in the history of control work in contagious diseases of animals. The ultimate result will undoubtedly be the solution of many of the control problems which now confront us.

By reason of our work in the control of hog cholera we have been brought in close touch with many other disease conditions, some of which are of serious menace to the raisers of swine. In their clinical aspects many so closely resemble hog cholera that differential diagnoses are difficult and only arrived at after considerable investigation both in the field and in the laboratory.

Hemorrhagic septicemia, necrotic enteritis, and various mixed infections have been more prevalent than usual this year, either as primary or secondary invaders often co-existent with hog cholera. Against these diseases, and to accomplish their prevention or cure, we are at all times at the service of swine owners, and are endeavoring to execute in this direction the best quality of work suggested by the present-day knowledge concerning these infections. Results in the main are highly satisfactory in a practical sense, as many thousands of animals are saved by treatment.

During the past year approximately 16,000 treatments in prevention or cure of hemorrhagic septicemia have been administered in the form of either sera vaccines or bacterins, singly or in combinations as deemed advisable, and the prospect is that this branch of our work will be actively continued the coming year on account of general recognition by swine owners of its value.

MISCELLANEOUS DISEASES.

Anthrax. — Although an extensive prevalence of anthrax has not occurred in Massachusetts for many years, there are recorded every year the deaths of a small number of animals from this disease. Our records show that in this State cattle and sheep are the species most commonly affected, and we have an occasional case in the horse. Nearly all species of domesticated animals are susceptible, however, and infection

of the human subject frequently occurs. The mode of transmission to man is generally by the handling of carcasses, hides or wool of animals which have been affected with the disease. We record this year one case of the disease in the human subject. The person affected was the owner of a number of cattle whose deaths from the disease had occurred at different times during a period of several months, which animals had been cared for by him and whose carcasses had been handled by him. He fortunately recovered.

On account of the danger of transmission of this disease to people it can be readily seen that we should be particularly anxious to limit its prevalence by every means at our command. All reported cases of an outbreak among animals are immediately investigated and subsequent action is taken as deemed advisable by the facts disclosed. Positive diagnosis is first necessary, and, as the animals generally either are found dead or die before arrival of a veterinarian or Division inspector, a post-mortem examination would ordinarily be depended upon to confirm the suspicions of anthrax. As post-mortem appearances in this disease are often not sufficiently characteristic to justify a positive diagnosis, and as the opening of a carcass allows the body fluids to escape and possibly spread the infection, it is advised that the suspected carcass be not opened, but that a specimen of blood be drawn from the cadaver on to a piece of glass and then allowed to dry in the air. If this specimen is not badly contaminated by careless preparation, and is promptly forwarded to a laboratory, there is no difficulty in determining whether or not anthrax bacilli are present.

A field diagnosis or suspicion of anthrax having been confirmed, preventive measures at once follow. They consist of proper disposal of diseased carcasses, disinfection of premises, and preventive inoculation of susceptible and exposed animals.

To prevent infection spreading from a carcass it should be burned or deeply buried, covered with quicklime. Anthrax bacilli or their spores if not destroyed may continue to infect soil for a long time; in many instances these organisms have been found to remain active for a number of years. We recommend that any contaminated ground be burned over and the surface area above a buried carcass be fenced and

burned over yearly. Any contaminated portions of buildings if wooden should be torn out and burned, and if concrete should be thoroughly disinfected.

The remaining animals of the herd should be at once removed to other buildings or areas, and the apparently healthy ones inoculated in prevention of the disease. Animals already affected are sometimes successfully treated, but ordinarily the disease runs such a rapid course that death takes place before the animal is noticed to be seriously sick, and our efforts are consequently limited to protection of the animals not showing symptoms. Although a certain percentage of deaths may reasonably be expected to occur among the inoculated animals, we find in actual experience that fatalities are very few.

Preventive inoculation is supposed to confer immunity for a period of at least twelve months. At premises where an outbreak has occurred and there is reason to fear permanent infection, it is advised that all susceptible animals be given a preventive inoculation each succeeding year for a certain period.

During the past year the disease has occurred in 11 head of cattle, 1 horse and 7 sheep on 4 different premises in 3 towns. Of these 19 animals, 2 were in the town of Conway, 13 in the town of Cummington, and 4 in Sheffield. The preventive inoculation has been applied to 263 head of cattle, 11 horses and 38 sheep on 12 different premises located in 6 towns.

In one herd of 29 cattle where the disease broke out and two immediately died, all the remaining animals were given preventive inoculation and no additional deaths occurred. In one herd of 40 cattle given preventive inoculation, 1 cow died within an hour. Reported anthrax in 4 instances proved upon investigation to be some other disease.

Blackleg. — This disease, more or less prevalent in many parts of the world and generally fatal, affects young cattle only, except in rare instances. It is readily prevented by a yearly protective inoculation of the susceptible animals. As it generally develops during the pasture season we recommend that the inoculations be made just before turning the animals to pasture in the spring. This service is rendered by the Division free of expense to cattle owners, and if it is called for at the proper season, or in case of outbreak among un-

treated animals it is promptly reported and the non-affected ones are thereupon inoculated in prevention of the disease, and then removed to other pastures, its prevalence is limited and the fatalities are few.

Blackleg is a disease generally contracted from infected soil and is seldom transmitted directly from animal to animal, differing in this respect from many other contagious diseases. Authorities agree that the bacilli seem to be capable of multiplying in the soil, and through their resisting spores to preserve their capacity of development and infectiousness even under unfavorable conditions. This, as well as the fact that bacteria from carcasses of dead animals again infect the soil, explains the fact that we always fear a yearly recurrence of the disease on certain farms, and consequently recommend preventive treatment of all young cattle pastured on premises where the disease has once existed.

During this year we have administered preventive inoculation to 989 animals on 143 farms in 47 towns, as tabulated below:—

	Premises.		Premises.
Ashburnham,	4	Montague,	1
Ashby,	9	New Marlborough,	1
Ashfield,	1	North Adams,	1
Athol,	2	Northampton,	5
Ayer,	1	Orange,	12
Becket,	2	Otis,	1
Blandford,	1	Peru,	1
Boxborough,	4	Pittsfield,	5
Brimfield,	1	Prescott,	1
Buckland,	1	Rowe,	7
Cheshire,	2	Royalston,	3
Chester,	3	Sandisfield,	5
Dalton,	1	Shelburne,	4
Fitchburg,	3	Southampton,	2
Gardner,	2	Templeton,	3
Great Barrington,	1	Townsend,	4
Greenwich,	2	Tyringham,	3
Harvard,	3	Warwick,	6
Holyoke,	5	Wendell,	1
Lee,	9	Westhampton,	2
Leicester,	1	Williamstown,	1
Leverett,	1	Winchendon,	1
Littleton,	7	Windsor,	1
Middlefield,	6		

The records show that our work this year has been done on 213 fewer animals than last year and on 5 fewer farms, the number of towns in which these farms are located being the same. The deaths reported are 15 head of cattle on 3 different premises, a reduction of 12 in the number of fatalities.

The same general recommendations as in anthrax outbreaks, regarding disposal of infected carcasses by burning or deep burial, followed by disinfection of contaminated areas or buildings, are applicable in outbreaks of blackleg.

Actinomycosis. — Eleven cases of this disease have been reported this year, located as follows: 1 each in Avon, Boston, Colrain, Harwich, Millis, Milton, New Bedford, Northfield and Scituate, and 2 in the town of Plymouth.

It is our custom to quarantine affected animals so that they may not be sold, but allow the owner to have treatment applied by a veterinarian, or to fatten them for slaughter. In a few cases recovery takes place and such animals are then released from quarantine.

Of the 11 cases on this year's record, 8 have been slaughtered, 2 have been released as recovered, and the remaining 1 is still held in quarantine.

Hemorrhagic Septicemia in Cattle. — This is a disease of very great prominence in some sections of the country, where it causes the sudden death of large numbers of cattle. Its prevalence in Massachusetts, however, is limited, and confined to isolated cases in widely separated localities. Our records show fewer deaths from the disease this year than last, 22 fatalities only being reported. These occurred in the towns of Berlin (3), Medfield (2), Templeton (9), Winchendon (4), and 1 each in the towns of Gardner, Hubbardston, Spencer and Wellfleet.

Preventive inoculation of all animals in a herd where the disease has appeared is generally successful in controlling its further extension, and we advise also that all animals be removed from a pasture where an outbreak occurs. This alone is sometimes sufficient to prevent further losses. Preventive inoculation has been administered to 43 head of cattle during the year.

An analogous type of hemorrhagic septicemia appeared in

a herd of goats in the town of Lexington, resulting in the death of six animals. The remainder of the herd, 85 in number, was given preventive inoculation, and no additional fatalities occurred.

Parasitic Diseases. — The study of animal parasites and their damaging effect on profitable live-stock raising is at the present time going on in a more intensive and scientific manner than ever before in the history of animal-disease control work. The result of this study is already being reflected in the increased attention given the subject by stock owners and veterinarians, and in their heeding of the convincing arguments as to the great economical waste resulting from the poorer growth of animals infested with parasites, either internal or external, and the lessened amount of their products.

The most prevalent parasitic condition which the Division has to deal with is that known as mange, which affects large numbers of cattle during certain seasons, and is also found prevailing to some extent among horses. While we have received reports of 421 head of cattle affected on 16 different premises, we know that this number is no indication of the number of animals infested, for the reason that many cattle owners do not take the trouble to report their cases.

Many owners also do not trouble to treat their animals, but successful treatment is possible if owners or attendants will faithfully carry out the local application of proper medicinal remedies. Treatment is not expensive, but is very inconvenient of application.

It is our custom to quarantine reported cases, if the animals are kept under conditions favorable to spread of the infestation, and particularly where owners or attendants cannot be depended upon to properly apply treatment. An increasing number of owners, however, now realize that it really pays to do everything possible to rid their animals of these parasites.

Thirty cases of the disease in horses have been reported during the year, from 5 different premises. Quarantined infested horses are generally allowed to work during treatment, but are forbidden to enter enclosures other than their own stables. Seven of the horse cases were detected on the ar-

rival of the animals from another State, and were at once quarantined. In one stable where infested horses and cattle were found, 3 dogs and 6 cats were also victims of these parasites.

Among the parasitic diseases met with is what is called "nodular disease" in sheep, not often fatal but greatly inhibiting the growth of the animals, especially the lambs.

Stomach worms were found to be the cause of the death of 75 sheep out of a flock of 100.

Foot-and-mouth Disease. — This disease fortunately has not appeared in Massachusetts during the past four years, although it has been reported from two different towns this year. Prompt investigation of these reports proved them to be unfounded. The disease has prevailed to an alarming extent in many foreign countries during the past year, and we have therefore considered the possibility of its appearance at any time in this country. The Federal authorities are carefully watching the situation and have formulated plans for immediate control work if the emergency occurs. In Massachusetts all Division veterinarians, inspectors of animals, and private veterinarians have been notified of the danger and asked to be constantly on the watch, and to promptly report any suspicious cases in order that they may be immediately investigated, and measures taken to at once prevent the spread of the disease. In one reported instance this year, occurring in a herd of 16 cattle, the symptoms shown by 2 animals sufficiently resembled foot-and-mouth disease to render it desirable to make inoculation of susceptible animals in order to arrive at a positive diagnosis. The inoculations all proved negative to this disease.

Bovine Infectious Abortion. — This disease has not as yet been especially designated as reportable by notification to cattle owners, inspectors of animals or veterinarians. Until additional knowledge pointing to the control of this scourge has been gained, whereby strictly official control methods would appear to be advisable, the functions of the Division officials must necessarily be limited to the giving of advice as to the general management of infected herds, and how to carry out the various sanitary measures recognized as essential

to progress in control of the disease. Without doubt its prevalence is quite extensive and its ravages are well known to every one engaged in dairying or breeding of thoroughbreds. The losses occasioned by it and by its many concurrent conditions are estimated to be second only to the losses from tuberculosis. It does not, however, seem advisable for the Division to enter the field of specific treatment of infected herds or individual animals, work which can probably be more satisfactorily attended to by the private veterinarian.

Other Infectious Diseases.—Twenty-two cases of tuberculosis in swine have been reported this year from 9 different towns. Undoubtedly this disease is more prevalent than these reports indicate; most of our reports come from slaughter houses where the disease is found at time of slaughter, and where the inspectors of slaughtering are interested to furnish us the information. As a tuberculous hog generally indicates tuberculous cattle as the source of the disease, it is our custom to examine all cattle on the premises from which the diseased hog comes.

Contagious disease of the eyes was reported as affecting an entire herd of 20 cattle on one farm. In a herd of 30 sheep, 9 were found also to have a contagious disease affecting their eyes.

Infectious pneumonia was reported in a lot of 10 cows, one of which died. Fourteen horses were affected with a contagious form of pneumonia in a stable of 100 animals, and 4 deaths occurred.

The Division has frequently been called upon to make examination of animals suspected of being affected with a contagious disease, and where it has been found that the animals were suffering from a disease not of a contagious nature. Among such instances the following may be mentioned:—

Twenty-three horses were taken suddenly sick immediately after being fed from a new consignment of oats, and 4 deaths occurred. Subsequent investigation showed that the car in which the oats were transported had contained castor beans

as the previous shipment, and this was probably the cause of the fatalities.

Forage poisoning caused the death of 3 cattle in Princeton, 5 in Middleborough, 5 in Wakefield, 3 horses in Hingham, 8 in Taunton, and 1 in Cohasset. Poison, the nature of which was not determined, caused the death of 6 dogs in Oak Bluffs, 1 cow in Rutland, 2 horses in Lenox, and 3 swine in Mattapoisett.

Other cases, in small numbers, were foot rot in cattle, enteritis, milk fever, paralysis of throat, cancerous growth, white scours, and malnutrition.

LABORATORY EXAMINATIONS.

Laboratory service is a necessary and important adjunct to successful work of any organization charged with the control and eradication of contagious disease among animals. It happens in many instances in the Division's work that a diagnosis cannot be positively made from the clinical symptoms shown by the animals, and as all the subsequent work in a case is formulated from the starting point of a correct diagnosis, the aid of the laboratory at this point becomes quite important.

The Division is most fortunate in having at its request the service of the bacteriological laboratory of the State Department of Public Health. Its service in our behalf has been most satisfactorily attended to, our entire work for the year having been efficiently and promptly performed.

The most important service has been the examination of the brains of 163 animals submitted because suspected of rabies, and in such cases a prompt and positive conclusion as to the existence or non-existence of the infection is necessary, especially so if persons have been bitten by the suspected animal.

Two hundred and twenty samples of blood taken from horses in our work of glanders control have been tested. In addition to these principal services, 56 specimens were examined, listed below by diseases suspected:—

	Positive.	Negative.
Anthrax, .	3	18
Fatty degeneration, .	1	-
Glanders, .	-	3
Hemorrhagic septicemia, .	8	8
Hodgkins disease, .	1	-
Intestinal parasites, .	3	-
Nodular disease, .	1	-
Pneumonia, .	2	-
Poisoning, .	2	-
Ringworm, .	1	-
Tuberculosis, .	-	2
Tumor, .	1	-
	23	31
Specimens too decomposed for diagnosis, .	. . . . .	2

Ten of the 21 specimens listed under anthrax were also examined for hemorrhagic septicemia, to which they were negative. One was also examined for blackleg and found to be negative. In addition to the above, 56 samples of blood from cows on 3 different farms were submitted for examination for bovine infectious abortion, 17 of which proved positive, 34 negative, and 5 questionable. One specimen which was recorded as positive for pneumonia was also examined for hemorrhagic septicemia. Two specimens were received in so decomposed a state as to make laboratory diagnosis impossible.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES.

On receipt of the inspectors' reports in the Division's office they are carefully gone over, and the information which they contain is classified and tabulated in a way convenient for reference.

From this tabulation a fairly correct and comprehensive survey may be drawn of the general health conditions of the live stock on the farms of the State and the sanitary conditions under which they are kept. Its study is of value when formulating our general policies for disease control work and for the betterment of stable conditions.

Inspectors' reports also furnish the only correct "census" which is made of farm animals in the State, and in that connection are of interest and value not only to the Division and the Department of Conservation but to other State departments, also to individuals and associations interested in the breeding and raising of live stock, or engaged in any of the many lines of business closely related thereto.

In many instances cases of contagious disease not previously reported are found. Such are immediately quarantined and brought to the notice of Division officials and an important work in disease control is executed.

In many other instances unhealthful stabliling conditions are brought to the attention of owners, and recommendations for improvement are suggested and insisted upon. If these are not attended to within a reasonable length of time, the cases are brought to the attention of Division officials who, either through the district veterinary inspector or through correspondence direct with the owner, endeavor to have them carried out. District veterinary inspectors have during the past year made 968 visits to premises where unsanitary conditions existed, and in a majority of instances full or partial correction of them has resulted.

It will be seen, therefore, that the annual inspection made by the local inspectors in cities and towns is a valuable aid to proper execution of the work imposed by law upon the Division of Animal Industry.

A gross tabulation of the reports of this year's inspection by local inspectors of animals follows:—

Total number of herds of cattle inspected,	. . . . .	30,039
Number of herds containing not over 5 dairy cows,	. . . . .	21,677
Number of neat cattle inspected,	. . . . .	226,800
Number of dairy cows inspected,	. . . . .	154,407
Number of herds found clean and in good condition,	. . . . .	28,928
Number of stables inspected,	. . . . .	30,746
Number of stables properly drained,	. . . . .	30,538
Number of stables well ventilated,	. . . . .	30,340
Number of stables sufficiently lighted,	. . . . .	30,031
Number of stables found clean,	. . . . .	29,422
Number of stables in which improvements were recommended,		821
Number of herds of swine inspected,	. . . . .	14,692
Number of swine inspected,	. . . . .	100,982
Number of herds of swine garbage-fed,	. . . . .	2,844
Number of swine garbage-fed,	. . . . .	52,219
Number of sheep inspected,	. . . . .	17,002
Number of goats inspected,	. . . . .	1,360

The annual inspection from which the above tabulation was made took place during the spring months of 1920. Compar-

ing the statistics with those of the year previous we find the following interesting fact:—

While the total number of bovine animals of all ages shows a decrease of 3,391, yet the number of dairy cows shows an unusual increase this year of 3,814. From a strictly dairy point of view this is cause for congratulation. It places the number of dairy cows in the State, 154,407, at a higher point than at any time since 1913, and shows it to be rapidly getting back toward the average number for the past seventeen years, namely, 158,778.

In connection with the references made to the statistics gathered by local inspectors of cities and towns, and the many ways in which such statistics are of value as well as of extreme interest, the importance of inspectors' services, of varied character, in connection with sudden outbreaks of contagious disease, such as rabies, should be mentioned; also their work in identification and release of animals shipped from other States. These officials are a very necessary part of our organization, and according as they are observant, prompt to act, and faithful in performance of their duties, render the Division valuable aid in the execution of its work in control and eradication of disease.

The fact of the statistics showing this year a decrease in the number of swine has been commented upon under the section referring to contagious diseases of that species. We predict that when market conditions again approach the normal there will be a substantial increase in the number of these animals.

The number of sheep in the State has decreased somewhat, undoubtedly influenced, as with swine, by the prevailing high prices of fodder and the low prices of marketed carcasses used for food.

Meetings of inspectors were called at different points in the State, as follows: Pittsfield, November 10; Springfield, November 11; Greenfield, November 12; Worcester, November 16; Boston, November 17.

At these meetings matters of especial interest to the inspectors were discussed, such as general live-stock conditions, the prevalence of contagious diseases among the several species of farm animals, the increasing prevalence of rabies in dogs

and the necessity for prompt control methods in all outbreaks reported.

A question box was instituted at each meeting, and a new feature this year was the illustration by means of lantern slides of a talk on bovine tuberculosis. Charts, showing the yearly progress of the Division's activities in control work of different diseases, were also shown.

REPORTS OF RENDERING COMPANIES.

Section 111 of chapter 75 of the Revised Laws, as amended by chapter 243 of the Acts of 1907, requires rendering companies to report to this Division every animal received by them which is found to be infected with a contagious disease, and the information thus furnished is of value in bringing to the attention of the Division occasional cases of these diseases which otherwise would not be known. A table of reports of rendering companies follows:—

RENDERING COMPANIES.	Number of Reports.	Number of Cases of Glanders.	Number of Cases of Tuberculosis.	Number of Cases of Actinomycosis.	Number of Cases of Glanders not previously reported.	Number of Cases of Tuberculosis not previously reported.
Ayer Rendering Company, . . .	4	-	4	-	-	-
Edwin G. Baker & Son, Providence, R. I.	1	1	-	-	-	-
C. S. Bard, Haverhill, . . .	3	-	3	-	-	2
Boston Rendering Company, Saugus,	3	3	-	-	-	-
J. H. Castle, Taunton, . . .	1	1	-	-	-	-
Home Soap Company, Millbury,	12	2	21	-	2	5
Lowell Rendering Company, . .	11	1	18	-	1	2
James E. McGovern, Andover, . .	3	-	3	-	-	1
New England Rendering Company, Brighton.	9	8	4	-	-	2
Parmenter & Polsey Fertilizer Company, Peabody.	5	-	11	-	-	-
N. Roy, Jr., Fall River, . . .	1	-	1	-	-	-
N. Roy & Son, South Attleborough, .	3	-	4	-	-	-
Springfield Rendering Company,	4	5	-	-	-	-
N. Ward Company, Boston, . . .	4	3	-	1	-	-
Totals,	64	24	69	1	3	12

NOTE.—All the above cases are included in statistics occurring elsewhere in this report.

RECEIPTS OF LIVE STOCK AT THE STOCKYARDS IN BOSTON
AND VICINITY FOR TWELVE MONTHS ENDING Nov. 30,
1920.

For several years, at the request of the United States Department of Commerce and Labor, a report of the receipts of all live stock at Boston has been sent to Washington each month. The following table shows the receipts by months for the past year:—

FOR MONTH OF —	Cattle.	Calves.	Sheep.	Swine.	Horses.
December,	11,169	13,388	20,482	88,062	675
January,	8,733	10,793	8,674	132,816	923
February,	7,526	12,602	4,502	97,221	546
March,	9,062	21,154	5,922	102,367	1,051
April,	8,280	20,011	3,447	52,517	1,180
May,	6,243	20,879	11,361	72,139	1,120
June,	8,135	19,196	25,448	119,243	1,667
July,	5,815	12,547	22,510	78,977	1,548
August,	9,151	15,746	37,732	59,568	2,189
September,	7,603	12,219	34,071	43,930	1,470
October,	10,694	18,226	36,954	44,888	844
November,	16,261	19,411	48,867	81,132	994
Totals,	108,672	196,172	259,970	972,860	14,207

FINANCIAL STATEMENT.

Appropriation for the salary of the Director, chapter 225, Acts of 1920,	\$3,500 00
Expended during the year for the salary of the Director,	3,500 00
Appropriation for personal services of clerks and stenographers, chapter 225, Acts of 1920,	\$7,900 00
Supplementary appropriation, chapter 629, Acts of 1920,	650 00
Total amount appropriated,	\$8,550 00
Expended during the year for the following purposes:—	
Personal services of clerks and stenographers,	\$7,420 59
Extra clerical and stenographic service,	240 59
Total expenditure,	\$7,661 18
Unexpended balance,	888 82
	\$8,550 00

Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 225, Acts of 1920,

Brought forward from 1919 appropriation,	\$4,400 00
	95 93

Total amount appropriated, \$4,495 93

Expended during the year for the following purposes:—

Books and maps,	\$96 60
Express and messenger service,	230 35
Postage,	631 21
Printing report,	181 19
Other printing,	809 95
Telephone and telegrams,	601 35
Stationery and office supplies,	686 36
Typewriter,	58 15
Expenses of the Director,	531 23

Total expenditure, \$3,826 39

Unexpended balance,	669 54
	\$4,495 93

Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 225, Acts of 1920,

. \$50,000 00

Expended during the year for the following purposes:—

Services of regular agents,	\$33,521 81
Services of <i>per diem</i> agents,	9,059 00
Labor hired,	104 00

Total expenditure, \$42,684 81

Unexpended balance,	7,315 19
	\$50,000 00

Appropriation for the traveling expenses of veterinarians and agents, chapter 225, Acts of 1920,

. \$24,000 00

Expended during the year for the following purposes:—

Traveling expenses of regular agents,	\$13,789 75
Traveling expenses of <i>per diem</i> agents,	4,546 42

Total expenditure, \$18,336 17

Unexpended balance,	5,663 83
	\$24,000 00

Appropriation for reimbursement of owners of cattle and horses killed, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services, and for laboratory and veterinary supplies and equipment, chapter 225, Acts of 1920,

. \$55,000 00

Brought forward from 1919 appropriation,	1,322 30
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Total amount appropriated, \$56,322 30

Expended during the year for the following purposes:—

1,016 head of cattle condemned and killed on account of tuberculosis in 1918, 1919, 1920, paid for in 1920,	\$42,609 50
---	-------------

26 horses condemned and killed on account of glanders and farcy in 1919 and 1920, paid for in 1920, 1,375 00

Supplies for veterinary inspectors,	\$432 13
Laundry,	376 78
Antiseptics, biologics and disinfectants,	469 70
Thermometers, needles, syringes, etc.,	775 25
Ear-tags, punches, chains, etc.,	553 50
Expenses of killing and burial,	82 90
Expenses of travel allowed inspectors of animals,	587 95
Quarantine expenses,	62 25
Rent of quarantine office,	120 00
Sundries,	97 95
<hr/>	
Total expenditures,	\$47,542 91
Unexpended balance,	8,779 39
<hr/>	
	\$56,322 30

The average amount paid for condemned tuberculous cattle this year is \$40.64.

During that portion of the year (eight and one-half months) in which the maximum amount payable by the Commonwealth for any one animal was fixed at \$40, the average price paid was \$37.91. For the remaining three and one-half months of the year during which the maximum amount of \$60 per animal was available, the average amount awarded was \$44.90, an increase of \$7. The numbers of cattle condemned, however, in this latter period increased more than 90 per cent.

Two hundred and forty-eight claims for reimbursement for cattle condemned and killed as tuberculous during the year, amounting to \$10,314.50, remain unsettled, to be paid for on proof.

Claims applying to 5 horses condemned and killed during the year because affected with glanders remain unsettled, the claims not having been proved. The amount of these claims is \$250.

There has been received during the year from the sale of hides and carcasses of condemned animals \$523.05, and for the testing of cattle for non-resident owners \$16.75, a total amount of \$539.80.

Respectfully submitted,

LESTER H. HOWARD,
Director.

The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1921

DEPARTMENT OF CONSERVATION



BOSTON

WRIGHT & POTTER PRINTING CO., STATE PRINTERS
32 DERNE STREET

PUBLICATION OF THIS DOCUMENT
APPROVED BY THE
SUPERVISOR OF ADMINISTRATION.

The Commonwealth of Massachusetts

DEPARTMENT OF CONSERVATION.

DIVISION OF ANIMAL INDUSTRY,
BOSTON, Nov. 30, 1921.

To the Commissioner of Conservation.

I have the honor to present the following report of the work of this Division for the year ending Nov. 30, 1921.

The functions of the Division of Animal Industry and the duties of its officials may be described as follows: Inspection and examination of horses, cattle, sheep and swine within the Commonwealth, and of the conditions under which they are kept; the execution of measures in prevention, control or cure of contagious disease among them and the other species of domestic animals; the slaughter when necessary of such as are affected with, or have been exposed to, contagious disease, to be followed by the burial or other disposal of their carcasses; the cleansing and disinfection of districts, buildings or places where contagion exists or has existed. Another duty is the regulation of the transportation of horses, cattle, sheep and swine from other States to Massachusetts, in order that their condition of health may be established and no prevalence of contagious disease be caused by their entry. This regulatory work calls for the inspection and mallein testing of many horses, and the examination and tuberculin testing of such cattle as are to be used for dairy or breeding purposes and are not accompanied by satisfactory records of test. Tuberculin tests of cattle of whatever age moving interstate must have been made by veterinarians authorized by State and Federal officials to do this work, and, if regulations have not been complied with in all particulars, their violation must be investigated and proper tests applied by Division inspectors.

The maintenance of the health of the several species of domestic animals is of great importance for many reasons. It adds to the food supply of the people, bettering its quality. It materially increases the financial returns from the many lines of business with which the live-stock industry is inseparably connected. The important industry of dairying, to be financially successful, must produce large amounts of milk, butter and cheese, and to this result healthy animals are a first and prime requisite. The conservation of the health of all the species of animals whose carcasses are used for human food—cattle, sheep and swine—is necessary for their successful propagation and their raising to maturity or to the point where they are available as human food. Numbers are largely increased and growth is more rapid if they can be kept free from contagious disease. Not only is their money value as food animals enhanced, but the quality and amount of their commercial by-products, such as hides, wool, fat, fertilizer, and many other salable ones, are much greater than from animals stunted in growth or reduced in numbers by prevalence of disease.

Preservation of the health of the people is dependent in no small degree upon the elimination from animals of those diseases which are communicable to the human subject. Glanders, tuberculosis, rabies, anthrax and actinomycosis carry a high rate of mortality in man, and a diseased animal is often found to be the source of the contagion. For this reason also it is important that this class of diseases be prevented, controlled or, if possible, eradicated from the animal kingdom.

Agriculture in very many of its branches is so dependent upon successful live-stock raising, and prospers in such a direct ratio to the numbers of animals produced and maintained on the farm, that there is no question as to the superior economy in raising and maintaining healthy animals only. Satisfactory revenue from the investment in our farm animals of time, labor and capital can only be returned by horses, cattle, sheep and swine which are sound and not inhibited in their propagation, growth and economical use by contagious disease.

In considering the work of this Division of the Department of Conservation, and in argument that it is important as a

public function, we call attention to the fact that each succeeding year there is manifested an increased dependence of the public for food material upon domestic animals, as represented not only by dairy products but by the meat value of the carcasses of cattle, sheep and swine. That these carcasses may be found fit for human food at the time they are converted to that use, it is necessary that the animals shall have been raised under proper sanitary conditions, and maintained free of contagious disease up to that time. The carcasses of thousands of animals are yearly condemned in the country as a whole on account of lesions of contagious disease being found at time of slaughter. It is an economic necessity of the State and Nation that this great waste be reduced to a lower point than has yet been reached. Although progress in this direction is yearly advancing through the active co-operation of Federal, State and municipal authorities to this end, the Division of Animal Industry recognizes that its work of elimination of animal diseases has a broad field for expansion, and that its duty in relation to an increased food supply for the people is well defined.

The following report consists of a brief summary of this year's work of this Division, illustrated by charts showing the control work of recent years of some of the principal contagious diseases of animals. These charts will probably be of considerable interest to those who have been familiar with the workings of our organization during a period of years. They show the number of cases we have had to deal with, and the working out of policies that have been pursued, with such occasional variations as seemed advisable, for a considerable length of time.

Following is a gross summary of the work of the Division for the year ending Nov. 30, 1921:—

CATTLE.

31,892 Massachusetts cattle were physically examined by inspectors.

2,995 Massachusetts cattle were tuberculin tested by Division veterinarians.

3,507 interstate cattle were tuberculin tested by Division veterinarians.

8,518 tested interstate cattle were examined at Brighton and their test records viséed.

5,442 tested interstate cattle were inspected and identified at other points.

1,137 animals on 164 farms in 51 towns were given preventive treatment against blackleg.

94 animals on 8 farms in 4 towns were given preventive treatment against anthrax.

137 animals were given preventive treatment against hemorrhagic septicemia.

1,294 visits to unsanitary premises were made by district veterinarians.

HORSES.

206 tests for glanders were made by Division veterinarians.

4,382 interstate horses were examined by inspectors.

5 tests of whole stables were made by Division veterinarians.

DOGS.

959 cases of possible rabies in dogs were investigated.

SWINE.

54,346 head of swine were treated in prevention or cure of hog cholera.

10,580 head of swine were treated in prevention or cure of hemorrhagic septicemia.

MISCELLANEOUS DISEASES.

299 cases of miscellaneous diseases were investigated by Division veterinarians.

BOVINE TUBERCULOSIS.

This disease, widely prevalent, existing in all sections of the world where cattle are raised, and recorded in Massachusetts statistics for at least forty years, continues to be the greatest disease control problem of our time. All owners of cattle suffer financial loss from its ravages, whether their business is the raising of dairy products, the production and marketing of cattle for food purposes, or the propagation and sale of pure-bred animals as foundation stock for the establishment of new herds and for raising the quality of those composed of grade animals.

On account of the large number of carcasses and parts of carcasses condemned as unfit for human food because of the extent of tuberculous lesions found therein, the disease operates as a large factor in raising the price of beef and dairy products to the consumer. In fact, the significance of this great waste

of good food products was the original basis of the appeal by the live-stock industry of North America to the Federal government to inaugurate a campaign for its elimination.

The possibility of infection of the human subject from animal sources of the disease, now recognized as a well-established fact in many instances of tuberculous children, should be referred to as sufficient reason in itself for continuous study of any and all methods of control which promise any degree of success.

The major part of the yearly expenditures of the Division of Animal Industry is applied in indemnification of owners as reimbursement for cattle condemned and killed because affected with tuberculosis, as disclosed by physical examination. The expense incurred in carrying on this work is also one of our largest items and is gradually mounting from year to year, as the increased number of cases brought to light by improved methods of detection, and influenced by market conditions, calls for official action in their disposal. It cannot be said that a larger percentage of our herds is infected than formerly, or that the disease exists in a more virulent or active form than usual. On the other hand, many observers contend that there is a very marked improvement in this direction, and that the larger number of cases now brought to official attention is the result of more intelligent and skillful observation and of closer attention to the well-recognized necessity of promptly ridding the herds of their infected members.

During the year the local market for slaughter cattle, carcasses and by-products has been so low that an owner having animals which under ordinary market conditions he would send to the butcher when for any reason found not profitable to keep has not so disposed of them because of the small amount of money returns from their sale. He has turned to the prospect of a more satisfactory disposal of his cattle through condemnation of them by State officials as cases of tuberculosis. It very frequently is the case that the worn-out cow, or the one unthrifty or for any reason unprofitable, is a physical case of tuberculosis. Such a case if brought to official notice must be condemned in accordance with the law, and, if so condemned, operating to the owner's financial advantage is the present indemnity paid by the State, which indemnity was in-

creased 50 per cent, effective Aug. 18, 1920. The owner therefore submits the animal to our Division for examination. If not found to be diseased, he still has left the sale for slaughter; but if condemned, the money returns are bound to be more satisfactory than from sale. Division inspectors are all instructed to be absolutely fair to citizens of the Commonwealth when making appraisal of animals. On the other hand, there is much evidence that the cattle buyer, or the packing house official, is not always actuated by a similar spirit.

As a result of these conditions we have this year officially condemned very many animals which, under the former conditions of a good beef market on the one hand and a lower State indemnity on the other, would have been sent to slaughter without official attention having been called to them. It is probable that the appropriation to this Division for carrying out the law applying to the disposal of tuberculous cattle will have to be maintained at its present size or increased, at least while market conditions remain so unfavorable to the seller of animals fit for slaughter only, or unless the amount of indemnity be reduced in its maximum by amendment of the law now applying to such cases.

For thirty years the regulatory live-stock officials of Massachusetts have carried out such measures in the control of bovine tuberculosis as were authorized by law, supplementing them by regulations which seemed applicable to the conditions which from time to time arose. These measures have undoubtedly resulted in limiting the prevalence of the disease and controlling its spread, but it is probably true that its ultimate eradication cannot be hoped for so long as tuberculous animals remain in a herd until they show clinical symptoms sufficiently well marked to arouse the suspicion of the owner or of the inspectors of animals.

The diagnostic value of the tuberculin test carefully applied and interpreted by competent veterinarians is very generally recognized, and should be taken advantage of at every opportunity for the purpose of disclosing the non-clinical cases. Without its aid satisfactory control of the prevalence of tuberculosis among our cattle is not possible. The application of official tests at request of cattle owners shows a steady

increase each succeeding year, but the number of animals so tested is such a small percentage of the total number in the State that as yet no appreciable effect on eradication is to be noticed.

If it were practicable under our present laws to pay indemnity for cattle which reacted to an official tuberculin test, very many owners would seek its application, and some real progress in eradication of this great plague would be accomplished.

The Division is giving its support to the Federal movement in eradication of bovine tuberculosis, and co-operating with national authorities in this work to the fullest extent possible under existing law. The most prominent feature of the Federal movement is the "tuberculosis-free accredited herd" plan, upon which plan the movement largely depends for its indorsement by the cattle-owning public. Under this plan certain indemnity is paid for reacting cattle which are slaughtered, the owners of which have submitted their herds for official tests applied under Federal and State supervision. This payment of Federal indemnity, however, is contingent upon a like indemnity being paid by the State wherein the cattle are owned. Under existing Massachusetts law, indemnity is paid by the Commonwealth only for cattle which are condemned by Division officials, such condemnation occurring as a result of physical examination. As the majority of cattle reacting to a tuberculin test are not cases that can be readily condemned by physical examination, indemnity for such reactors is not paid by the State, and for that reason alone no Federal indemnity is available. The Massachusetts cattle owner, therefore, who desires to eradicate tuberculosis from his herd by slaughter of the reactors to an official test, finds himself denied both State and Federal indemnity as partial reimbursement for his losses, and consequently the work of eradication by the "tuberculosis-free accredited herd" plan has not progressed in this State to the extent it has in most other States of the Union, or to the extent it would if our laws were more favorable to its progress. In forty-seven States full co-operative action by the two governments is functioning satisfactorily, and nearly ten thousand herds have already been declared free from tuberculosis.

Believing that advantage should be taken of every factor

which promises to be of any assistance in the eradication of this scourge from Massachusetts live stock, it is to be regretted that the recommendations of the commission, appointed by His Excellency the Governor in 1919 to study the tuberculosis situation, were not favorably acted upon by the Legislatures of 1920 and 1921. These recommendations suggested an amendment to our laws providing for payment, under proper regulation, to owners of cattle whose animals were killed on account of having reacted to tuberculin tests applied under official supervision. We are still of the opinion that an active campaign against bovine tuberculosis, made more workable by an amendment to existing statutes, is what is greatly needed for relief of the situation in this State.

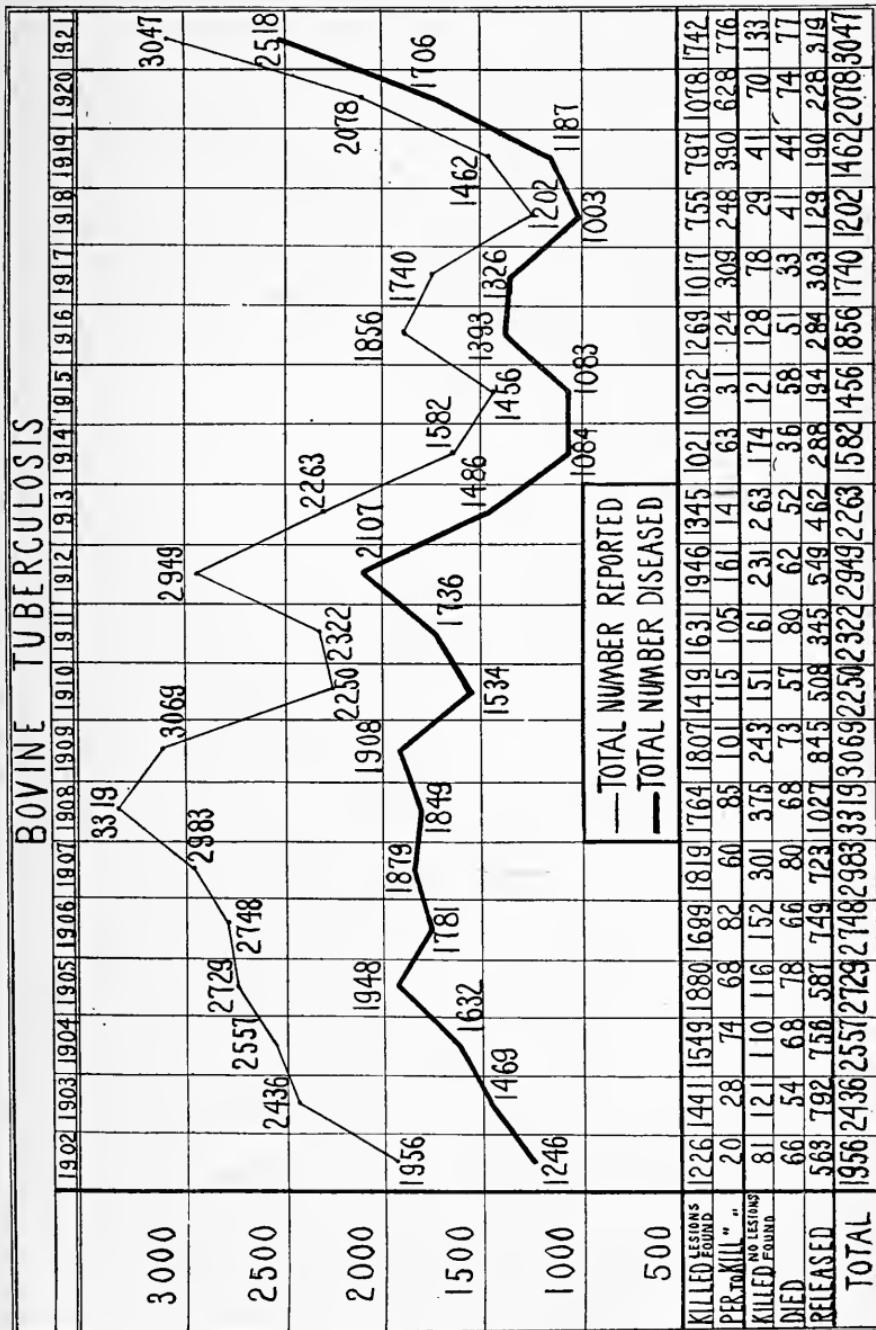
A public work of this sort means the expenditure of a considerable amount of money by the Commonwealth, but considering that such expenditure would command the award of a like amount by the national government, and that these combined- indemnities would make the official tuberculin test popular, the result would undoubtedly be the "cleaning up" of many infected herds. Ultimately as the work of testing increased the effect would be to so reduce the prevalence of the disease that the large annual appropriation now necessary to combat it would be very much reduced.

Following is a chart showing for a period of twenty years the number of cases reported to this Division and the number actually found diseased as proved by post-mortem examination, with marginal notes stating the methods of disposal.

This year's tabulation, as shown in the opposite chart, probably more nearly approaches a correct record of the prevalence of tuberculosis in our herds than that of any other one year. In addition to a diligent search for clinical cases as formerly, and the bringing to our attention of many more cases by the operation of the amended law increasing the indemnity payable by the Commonwealth, the tuberculin test reactors appear this year as a greater factor than ever before in our statistics. These show an increase in the number of positively diseased animals killed as reactors to State and private tests of nearly 40 per cent.

Comparing the last four years' records, we find the percent-

BOVINE TUBERCULOSIS



age of reactors to total number killed, as follows: 1918, 23.5 per cent; 1919, 28.1 per cent; 1920, 33.4 per cent; 1921, 30 per cent. In other words, nearly one-third of all the tuberculous cattle killed under our supervision this year were reactors to a tuberculin test and killed for that reason. Very few of these cases could have been detected by physical examination.

Following are various tables showing the extent of the work of the Division in connection with the control of bovine tuberculosis in Massachusetts for the year ending Nov. 30, 1921:—

Massachusetts Cattle.

Cattle reported as diseased in 1920 disposed of in 1921	24
Cattle reported as diseased during the year	3,032
	— 3,056

Disposal of Above Animals.

	Killed, Lesions found.	Killed, No Lesions found.	Permit to kill, Lesions found.	Permit to kill, No Lesions found.	Died.	Released.	Forward to 1922.	Totals.
Reported by inspectors, owners, etc.	1,686	30	75	33	75	319	7	2,225
Reacted to Division tests	—	—	343	36	—	—	—	379
Reacted to private tests	56	—	245	23	2	—	2	328
Reacted to United States tests	—	—	113	11	—	—	—	124
Totals	1,742	30	776	103	77	319	9	3,056

The preceding table shows the disposal of Massachusetts cattle suspected of tuberculosis and reported from all different sources.

Following is a tabulation of tuberculin tests only, made by Division inspectors, reported by private veterinarians, and by inspectors of the United States Bureau of Animal Industry. It shows also the disposal of such reactors as came under the jurisdiction of the Division and such as could be arranged for by consultation with owners:—

	DEPARTMENT TESTS.	1920.	1921.
Premises on which tests were made		37	59
Number of animals tested		1,924	2,995
Number of reactors		496	1,005

Disposal of Reactors.

Killed, lesions found		289
Killed, no lesions found		36
Awaiting action		680

NOTE.—In addition to above, 54 animals which reacted in 1920 were killed in 1921, in which lesions were found.

	TESTS REPORTED BY PRIVATE VETERINARIANS.	1920.	1921.
Number of herds in which animals were reported		153	162
Number of animals tested		3,631	2,740
Number of reactors		758	741

Disposal of Reactors.

Condemned on physical examination		56
Killed, lesions found		175
Killed, no lesions found		23
Showing no physical symptoms of tuberculosis, no record of disposal		485
Awaiting action		2

NOTE.—In addition, 70 animals reacting to test made in 1920 were killed and lesions found.

	TESTS REPORTED BY UNITED STATES BUREAU OF ANIMAL INDUSTRY.
Number of Massachusetts animals tested	8,589
Number of reactors	273

The tables show only a small increase from last year of the total number of cattle tested by Division inspectors and reported by private veterinarians. The figures are correct as to the Division tests, but undoubtedly many tests have been made by private veterinarians which have not been reported.

The significance of the figures is an increase this year of the percentage of reactors found in State tests from 25.5 per cent to 33 per cent, and in private tests from 22 to 27 per cent. This may possibly be due to the more general use of the ophthalmic and intradermic methods in place of, or in combina-

tion with, the subcutaneous method. Each of the three methods now in use occasionally discloses cases which fail to react to either of the others.

The record of tests made by the United States Bureau of Animal Industry inspectors should be especially noted. It shows a very low percentage (about 3 per cent) of reactors, due to the fact that many of the herds are composed of pure-bred animals under their constant supervision, regularly tested once or twice a year, and from which the reactors have been immediately removed. By these methods the disease has been partially or completely eradicated, and such of the herds as are not already accredited are well on the way thereto.

The Federal Bureau's work in this State constitutes a good example of the possibilities of tuberculosis eradication by application of the tuberculin test under proper supervision.

During the year Division and local inspectors have physically examined 2,517 herds, comprising 31,892 cattle. Much of this was "follow up" work at premises classified as *infected* because of the existence of one or more recent cases of tuberculosis. The number of herds and cattle examined is practically double that of the year 1920. It does not include any portion of the regular annual inspection of all herds by local inspectors.

Interstate Cattle.

In accordance with present regulations of the Federal government, all dairy or breeding cattle of whatever age shipped interstate must have passed a tuberculin test applied by veterinarians approved by the live-stock officials of the State where tested and by the chief of the Bureau of Animal Industry, United States Department of Agriculture.

A modification of this regulation is applicable, however, to cattle shipped to so-called "public stockyards" which are under the supervision of Bureau officials and where the animals can be tested upon arrival. On July 1, 1919, the Brighton cattle market was designated as "public stockyards," and such of the dairy or breeding cattle in the weekly shipments to that point as have not been tested before shipment are tested by inspectors of the Bureau of Animal Industry and of this Division working in co-operation. Check tests are also made

from time to time on interstate cattle supposed to have been properly tested before shipment, in order that the quality of this work done in other States may be determined.

Additional quarantine stations for receipt of animals for Brighton market are maintained at Watertown and Somerville, at which points many of the cattle destined for that market are unloaded. The protection of Massachusetts cattle interests at these points is carefully attended to by our force of inspectors, and we feel sure that no cattle which can be suspected of tuberculosis are released for any purpose except for immediate slaughter.

Brighton stockyards being the only point in the State to which untested cattle may be shipped, in strict compliance with Federal regulations, our former work of testing at other points is reduced to a minimum and consists only of testing such animals as may arrive not accompanied by a record of tuberculin test. A few violations of the regulations occur, some of them through ignorance of Federal and State requirements, and others in willful disregard of them. These latter cases are investigated when reported and prosecution in the courts is instituted if deemed advisable.

Following are tabulations showing in detail the interstate cattle work of the Division at Brighton and other points:—

AT BRIGHTON QUARANTINE STATION FROM DEC. 1, 1920, TO NOV. 30, 1921.

Number accepted on approved records of test	8,518
Number received and tuberculin tested	3,374
	— 11,892

Disposal of Above Animals.

Number released on accepted records of test	8,518
Number released on first test	3,037
Number released on second test	49
Number released on third test	12
Number released on fourth test	4
Number released for slaughter on first test	29
Number released for slaughter on second test	13
Number released for slaughter on third test	1
Number slaughtered on first test, lesions of tuberculosis found	179
Number slaughtered on second test, lesions of tuberculosis found	15

Number slaughtered on third test, lesions of tuberculosis found	1
Number slaughtered on first test, lesions of tuberculosis not found	27
Number slaughtered on second test, lesions of tuberculosis not found	5
Number slaughtered on third test, lesions of tuberculosis not found	1
Number held awaiting disposal	1
	<u>11,892</u>

NOTE.—In addition to above, 2 animals held from last year were released, 1 on first test and 1 on second test.

AT OTHER POINTS FROM DEC. 1, 1920, TO NOV. 30, 1921.

Number condemned in 1920 awaiting slaughter in 1921	2
Number held from 1920 awaiting disposal in 1921	13
Number received during the year	5,606
	<u>5,621</u>

Disposal of Above Animals.

Number released on accepted records of test	5,442
Number released on test made after arrival	109
Number condemned, lesions of tuberculosis found	20
Number condemned, lesions of tuberculosis not found	3
Number condemned in 1920, slaughtered in 1921, lesions of tuberculosis found	2
Number condemned awaiting slaughter in 1922	1
Number condemned on physical examination, lesions of tuberculosis found	1
Number brought in as reactors, killed on "permit to kill," lesions of tuberculosis found	2
Number arrived but not released at close of year	41
	<u>5,621</u>

SUMMARY.

Total interstate dairy cattle received at Brighton station	11,892
Total interstate dairy cattle received at other points	5,621
	<u>17,513</u>

Origin of the Above Interstate Cattle.

Vermont	4,662
Maine	5,750
New Hampshire	4,802
New York	2,008
Connecticut	92
Rhode Island	59
Other States and Canada	140
	<u>17,513</u>

Animals other than dairy cattle requiring tuberculin test received at other points than the quarantine stations may be classified as below:—

Cattle not requiring Tuberculin Test.

Cattle for immediate slaughter	1,120
Calves for immediate slaughter	1,408
Dairy calves under six months old	153
Cattle returned from out-of-State pastures	154
Cattle pastured in the State during the season	113
Feeder cattle	112
Lost	2
Condemned on physical examination	1
Returned from temporary stay in other States for breeding purposes, etc.	14
Remaining in State for brief periods only, for breeding purposes, etc.	13
For temporary stay at sales or exhibitions	979
Total	4,069

There are large numbers of cattle and calves from other States slaughtered at Haverhill and Springfield, at abattoirs which are under Federal inspection, which are not included in the statistics of this Division.

Twenty-nine permits allowing shipment of cattle into the State were brought over from 1920 not expired or reported upon before close of the year. There were 998 permits issued during the year; on 10 of these no report has yet been received. There were 110 instances brought to our attention where animals were shipped into the State unaccompanied by the permit required by State regulations, covering 384 head of cattle; 252 of these were accompanied by acceptable records of test; 39 were tested by Division veterinarians; 25 were feeder cattle; 12 were calves under six months of age; 23 came in for sale or exhibition; 2 were returning from pasture in another State; 1 remained for a brief period only, and 30 were immediately slaughtered. These figures are included in the statistical tables.

There were 395 head of cattle tested for shipment into New Hampshire for pasture and 82 head tagged only for that

purpose, going into other States, also 2 calves reported but not tagged.

At a sale of Ayrshire cattle held in Springfield in June, 58 head came from other States, 12 of which were sold to remain. At the annual New England Fair held in Worcester in September, 195 head from out of the State were exhibited, none being sold to remain.

At the Eastern States Exposition held in Springfield in the latter part of September, and a sale of Aberdeen-Angus cattle held in connection therewith, 680 head were brought from other States, of which number 9 dairy cattle were sold to remain in Massachusetts, and 1 was sold for immediate slaughter. There was a small number of baby beeves and 76 nurse cows on the grounds. Including cattle exhibited by Massachusetts owners, there was on the grounds a total of 995 head of cattle. There were also 262 sheep, 334 head of swine, and 293 horses.

The Division keeps records of all animals received at the several quarantine stations, also the States from which neat cattle are shipped, as shown by the following figures:—

Receipts of Stock at the Watertown Stockyards for the Year ending Nov. 30, 1921.

New Hampshire cattle	2,184
Vermont cattle	4,952
Calves	26,010
Sheep and lambs	1,411
Swine	1,455

Receipts of Stock at the New England Dressed Meat and Wool Company's Yards at Somerville for the Year ending Nov. 30, 1921.

Maine cattle	1,502
New Hampshire cattle	882
Vermont cattle	6,047
Massachusetts cattle	928
Canada cattle	495
Western cattle	14,644 ¹
Calves	96,576
Sheep and lambs	347,958
Swine	749,700

¹ Including 6,130 intended for export.

Receipts of Stock at Brighton for the Year ending Nov. 30, 1921.

Maine cattle	6,358
New Hampshire cattle	5,739
Vermont cattle	3,143
Connecticut cattle	50
Massachusetts cattle	9,784
New York cattle	8,620
Western cattle	52,597 ¹
Calves	64,304
Sheep and lambs	7,038
Swine	36,239

GLANDERS.

The prevalence of this disease among the equine species in Massachusetts is not only under perfect control at the present time but all indications are that it is well on the way to complete extermination.

These indications are based on steady, progressive diminution in prevalence from year to year since 1913. In that year there were destroyed 1,084 glandered horses, 556 of which were in the city of Boston, whereas during the year 1921 there have been killed 11 affected horses only, 1 of which was in Boston. A comparison of the records of these two years shows that the loss from this disease at the present time is in the ratio of one death to one hundred deaths in 1913.

Notwithstanding the fact that the prevalence in 1921 has been low, and unimportant from a disease control standpoint, we believe it necessary to closely watch the situation, and consequently we still enforce the same regulations as to interstate shipments as formerly, and still pursue the same methods in handling an outbreak of the disease.

Although the horse as a necessity in many lines of business and as a means of healthful recreation and pleasure has to some extent been replaced by motor vehicles, it has been conclusively shown that he cannot be entirely dispensed with in any of these lines of usefulness. He is now of priceless value in the field of preventive medicine, being used in large numbers for the manufacture of various biological preparations found

¹ Including 3,765 intended for export.

effective in the prevention and cure of many diseases of animals and man. He must therefore still be produced in considerable numbers, and be maintained free from contagious disease if possible.

The successful methods by which the number of cases of glanders has been rapidly reduced in the past few years, and which have apparently solved what was formerly a difficult problem of disease control, may be briefly referred to as follows:—

Immediate quarantine of all reported cases; prompt killing of all clinical cases, followed by disinfection of the premises where kept, of the blacksmith shops where shod, and of watering troughs where they were in the habit of drinking; examination and re-examination of all contact animals, together with application of the several diagnostic tests when necessary; extension of the plan of testing whole stables; closing of public watering troughs in sections where an outbreak of the disease occurs; testing of all horses and mules shipped interstate from New York, New Jersey, Connecticut and Rhode Island, unless accompanied by satisfactory records of recent tests.

The records of the Division for the year ending Nov. 30, 1921, show the following facts:—

At the end of 1920, 3 horses were under observation. Of this number, 1 was condemned, and 2 have been released as free from the disease.

During the past year 96 suspected animals, in addition to the 3 mentioned above, have been examined. Of this number, 7 animals proved to be positive cases and were destroyed in accordance with the requirements of the law; 1 was killed by its owner, autopsy proving it to have been a case of glanders; 1 State horse and 1 interstate horse were condemned and killed, no lesions of glanders being found on post-mortem examination, their full appraised value amounting to \$150; 2 horses died before final diagnosis was made; 83 were released as free from the disease; and 1 was still held under observation at the end of the year.

In the so-called "stable tests," or tests of all animals in stables where glanders has been found, 20 horses have been tested in 5 stables; among them 1 case of glanders was found.

The above figures are all included in the tabulations which follow:—

HORSES REPORTED AS SUSPECTED.

Brought forward from the year 1920	3
Reported by renderers	1
Reported by inspectors, humane societies, veterinarians, owners, etc.	94
Interstate, reported by inspectors	2
Contact animals examined in stable tests	20
	— 120

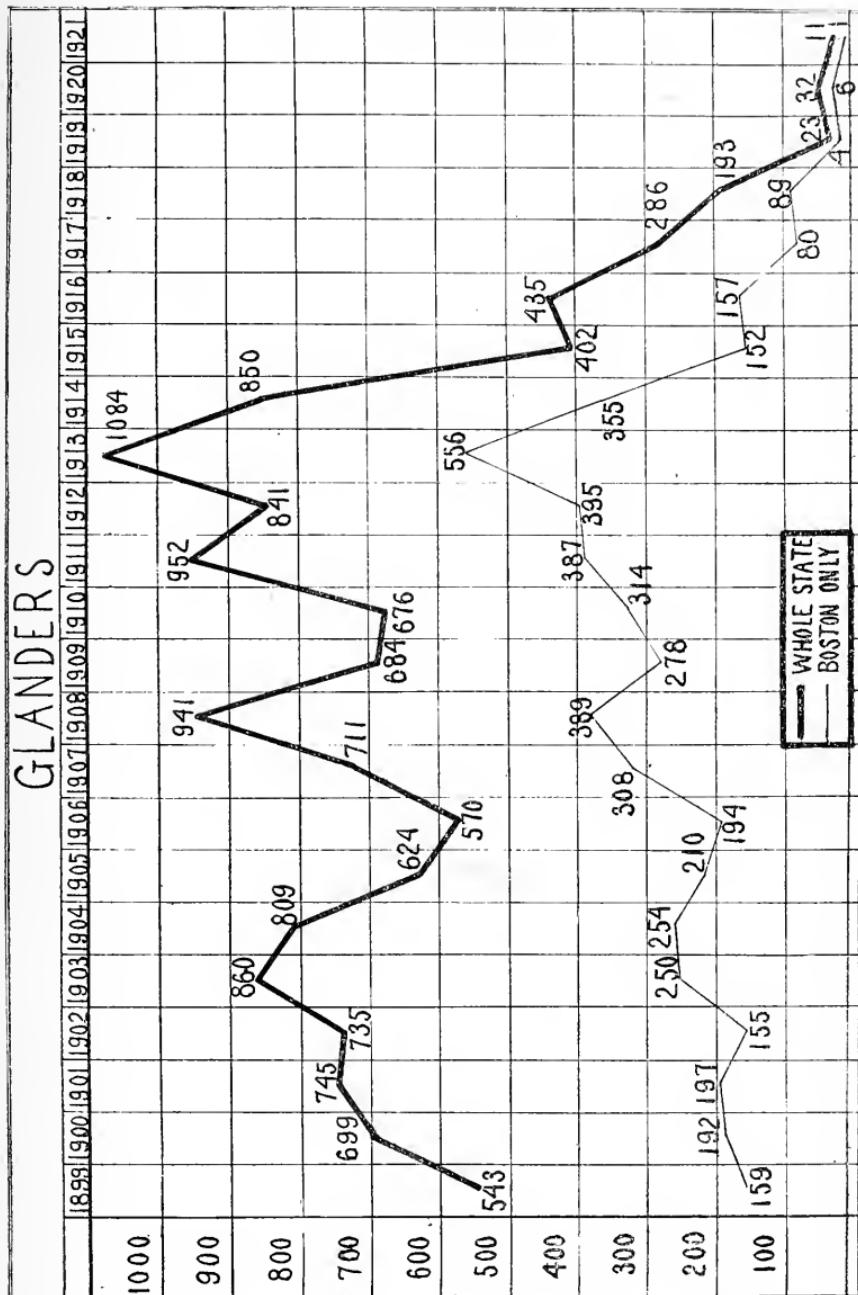
Disposal of Above Horses.

Appraised and killed, positive	9
Killed by owner, positive	1
Reported by renderer, positive	1
	— 11
Appraised and killed, no lesions found (1 interstate, 1 State)	2
Killed by owner or died, no lesions found	2
Released as not affected with glanders	104
Awaiting disposition	1
	— 120

Following is a table giving the number of cases of this disease covering a period of twenty-three years. In this table cases which have occurred in the city of Boston are shown separately, on account of the fact that Boston was for many years the storm center of this disease. Special tabulation of the number of cases in that city has always been made in order that its relative importance to other sections of the State may be studied.

Number of Cases.

YEAR.	CASES.		
	In Boston.	In Other Places.	Totals.
1899	159	384	543
1900	192	507	699
1901	197	548	745
1902	155	580	735
1903	250	610	860
1904	254	555	809
1905	210	414	624
1906	194	376	570
1907	308	403	711
1908	389	552	941
1909	278	406	684
1910	314	362	676
1911	387	565	952
1912	395	446	841
1913	556	528	1,084
1914	355	495	850
1915	152	250	402
1916	157	278	435
1917	80	206	286
1918	89	104	193
1919	4	19	23
1920	6	26	32
1921	1	10	11



The Massachusetts Society for the Prevention of Cruelty to Animals, the Boston Workhorse Relief Association, the Animal Rescue League, and the branches of these various associations in many cities and towns of the State have through their agents always been of material aid to the Division in the work of controlling this disease. Their close observation of working animals of all classes has in the past, when the disease was more prevalent, brought to light many showing suspicious symptoms, which they have promptly reported to this Division, and many of the animals so reported have proved to be positive cases of the disease.

The constant activity of the humane societies in removing disabled animals from work and destroying those which, on account of extreme age or poor condition, are no longer useful has undoubtedly been a factor in the suppression of glanders, as such animals are very susceptible to infection.

The maximum amount, fixed by section 13, chapter 129 of the General Laws, which may be paid for any one animal condemned and destroyed on account of being affected with glanders being \$50, the appraised value of the animals condemned is a subject of considerable interest. Of the 11 positive cases of glanders occurring during the year, 9 were appraised at a total valuation of \$1,155, the average amount per animal being \$128.33. On the remaining 2 animals no appraisal was made for the following reasons: 1 of them was reported by a renderer and 1 was killed by owner, the disease being found on autopsy.

Of the 9 horses which were appraised, 7 have been paid for, the amount paid being \$350; and 2 cases are awaiting the filing of claims for payment.

Complement-fixation Test.

The 3 horses under observation at the end of the year 1920 were subjected to the complement-fixation test, with the result that 1 was condemned and 2 were released as probably free from the disease.

One hundred and twenty-six samples of blood were taken from 101 horses during the year 1921, and the following disposal of the animals was made:—

Animals released on first test	80
Released on second test	11
Released on fourth test	2
Died or killed by owner after first test	1
Condemned on first test	2
Condemned on second test	2
Condemned on third test	2
Held for further observation after third test	1
	—
	101

Ophthalmic-mallein Test.

This test has been applied to 80 State and 163 interstate horses during the year. It happens that the test in some instances was repeated on the same animals, and 248 such tests have been made. The results are as follows:—

Tests giving positive reaction	2
Tests giving no reaction	239
Tests giving unsatisfactory results	7
	—
	248

Interstate Horses.

Horses, asses and mules shipped to Massachusetts from the States of New York, New Jersey, Connecticut and Rhode Island must be accompanied by a permit from the Director of Animal Industry. This regulation was established on account of the prevalence of glanders among the horses of the States mentioned, and in order that upon arrival the animals might be immediately located and examined by agents of this Division.

The number of horses, mules and asses shipped from these States has increased from 4,082 in 1920 to 4,500 in the year ending Nov. 30, 1921, the statistics following:—

EQUINE ANIMALS FROM NEW YORK, NEW JERSEY, CONNECTICUT AND RHODE ISLAND.

Mules	8
Horses	4,492
	— 4,500

Disposal of Above Animals.

Released upon physical examination	4,218
Released upon accompanying papers without examination	114
Released after test	163
Released in transit to other States	4
Suspicious to test, killed, no lesions found	1
	—
	4,500

It is worthy of notice that no interstate horses or mules were found during the past year to have been affected with glanders. Many of the animals brought from the above-mentioned States are of the better class, being highly bred horses used for carriage work and breeding purposes. The secondhand horses, which are trafficked in and sent from the markets of one State to those of another for purpose of public sale, have been specially watched on account of their being considered more liable to be subjects of contagious disease than the higher class animals, and if not accompanied by a satisfactory certificate of test have been tested on arrival by inspectors of the Division.

RABIES.

Rabies is one of the more important infectious diseases of domestic animals with which the Division of Animal Industry has to contend. It is prevalent in practically all civilized countries, and especially so in the United States.

When once established in a territory, it is tenacious in its hold, and complete eradication becomes a difficult matter. The control of its prevalence, however, is ordinarily accomplished quickly in a community where it breaks out when all agencies have been lined up against it and are functioning in a thorough and systematic manner. We find that it progressively spreads from one community to another until gradually many different sections eventually experience an outbreak. In addition to the loss of animals, some of them highly valued for one reason or another, the prevalence of rabies always carries with it more or less danger to human life. The restraint of animals is necessary to its suppression, and the regulatory measures called for are the cause of much trouble, expense and irritative inconvenience to the dog-owning public.

Rabies is primarily a disease of animals, all the various species being susceptible to it. The dog, however, is the one most often affected and is the chief factor in its spread from section to section. On account of its ready communicability to the human subject and the tendency of rabid animals to attack persons, the prompt application of all control methods becomes an important duty, and is especially to be so consid-

ered on account of fatalities which may occur. During the prevalence of rabies it unfortunately happens that some persons are bitten by the infected dogs, and in many instances the bite is inflicted before the animal shows sufficiently well-marked symptoms of the disease to be suspected or to put a person on guard against him. In such unfortunate occurrences, as well as in cases where persons are not able to avoid the attack of a furiously rabid animal, the Pasteur treatment in prevention of the disease is available and may be obtained by application to public health officials. This treatment being nearly 100 per cent effective, the loss of human life seldom occurs.

As a protective health measure all dogs, whether suspected of rabies or not, which have bitten persons should be restrained and confined at least fourteen days for observation, in order that it may be positively determined whether or not they were infected at the time the biting occurred. If a local inspector or the Division of Animal Industry is notified, such animals are officially quarantined for that period and released at the end of it if no symptoms of rabies have developed.

Based on the successful prevention in man, treatment in prevention of rabies in exposed animals is now available and is being taken advantage of in many instances apparently with success. The immunization of animals against the disease, conferring absolute protection to them if unfortunately coming in contact with a rabid animal, has been recently developed to what is thought to be a sufficiently effective stage to offer it for practical use. Many owners of valuable dogs, when there is an unusual prevalence of rabies, are having their animals protected by this means. If immunization against this disease can be proved practicable by further experience in this direction, and all dogs can be treated, it may be that the problem of rabies eradication will be somewhat nearer solution than at present.

The ownerless or stray dog is generally the first rabid animal to be found in any community, and the extent to which he may have spread the infection depends on how soon he has been apprehended after he developed the disease. No one being interested in the whereabouts or physical condition of the ownerless dog, he becomes an active spreader of the disease.

before attention is centered on him. A more rigid enforcement of the dog laws would be valuable assistance in suppressing rabies, and is a factor which should be working in every community at all times.

Division records this year show a larger number of cases reported than in any year since 1916, when the lowest prevalence for fifteen years was recorded, since which time there has been a gradual increase in their numbers. It is probable that we have not yet reached the peak of the upward trend of prevalence as yearly recorded on account of the vast amount of contagion recently existing in near-by States, the invasion of Massachusetts by it having been forecasted in our reports.

Local inspectors of animals are familiar with the situation and are specially advised as to the importance of early quarantine, thorough investigation and prompt detailed reports to this office.

Following is a general outline of the Division's present methods in rabies control work:—

Upon report being made to the Division that a person has been bitten by a dog, the inspector of animals of the town or city in which it occurs is ordered to make an examination of the animal, and, even if it appears to be healthy, to have it restrained for a period of fourteen days for the purpose of observation. The restraint for this length of time is deemed necessary for the reason that competent authorities have shown that in some instances the bite of a dog infected with rabies may communicate the infection fourteen days before the animal shows clinical symptoms. If at the end of this period no symptoms of rabies have developed, the animal may be released. In case a person is bitten by a dog which, upon examination by the inspector of animals or any other person, shows evidence of already being affected with rabies, or there is a history of its having been in contact with a rabid animal, the dog in either case is immediately confined in strict quarantine. If it is subsequently killed or dies, its head is at once sent to the Division's office, and a laboratory examination of the brain is made for the purpose of positively determining whether or not the animal was affected with the disease. Information as to the laboratory findings is promptly communi-

cated to the person or persons who have been bitten. The State Department of Public Health is given the information received in every case of dog bite reported to this office, whether the bite has been inflicted by an animal suspected of rabies or not. We also order the local inspector of animals not only to ascertain the names of all persons who have been bitten by dogs suspected of rabies but to find out if animals have also been bitten, and if so to place the same in quarantine for a period of at least ninety days. All dogs which are found to have been in contact with a rabid animal, whether or not it appears that they have been bitten by it, are also placed in quarantine for the same period.

If an unusual number of cases of rabies is found to exist in any town or city, and the selectmen or the mayor or board of aldermen have not taken any special action in the emergency, we request them to issue a restraining order, under the provisions of section 167 of chapter 140 of the General Laws. Such an order obliges all dog owners to confine their animals to their own premises for a certain period, or take them therefrom only on leash. This restraining order is much more effective in the local control of an outbreak than is an order which compels owners to muzzle the animals only but not restrain them, as a muzzled animal let loose may in some way get the muzzle off and bite other animals or people. A muzzled dog at large may therefore become much more dangerous than an unmuzzled one which is at all times confined upon owner's premises or taken therefrom only on leash. Dogs found running at large while a restraining order issued by town or city authorities is in force may be killed on the issuance of a warrant for the same to a police officer.

Our force of district agents, all of whom are veterinarians and located in different parts of the State, together with the local inspectors of animals, of whom there is one or more in every city and town of the State, constitutes an organization by which effective local control of an outbreak of this disease can generally be accomplished within a reasonably short time.

During the year ending Nov. 30, 1921, 948 animals were reported to the Division for diagnosis, observation or quarantine on account of the prevalence of rabies, and 28 were brought

forward from the year 1920. The records have been classified as follows:—

Animals suspected of rabies, primary cases						303
Animals exposed to rabies (26 reported in 1920, 362 in 1921)						388
Animals which have inflicted bites upon persons (2 reported in 1920, 283 in 1921)						285

Animals suspected of Rabies, Primary Cases.

	Dogs.	Cattle.	Cats.	Swine.	Horses.
Diagnosis positive	247	1	-	-	1
Diagnosis negative	38	-	4	1	-
Diagnosis questionable	10	-	1	-	-

Animals exposed to Rabies.

	Dogs.	Cattle.	Cats.	Horses.	Goats.
Number released after a quarantine of ninety days.	258	1	1	1	-
Number killed, no symptoms having developed.	47	1	-	-	-
Number killed, positive symptoms having developed.	35	1	-	-	1
Number still held under observation	42	-	-	-	-

Animals which have inflicted Bites upon Persons.

	Dogs.	Cats.
Number killed during quarantine, no symptoms having developed.	25	3
Number killed, no examination	4	-
Number released after fourteen days' quarantine	251	-
Number still held under observation	2	-

Of the 28 animals which were under observation at the close of the year 1920, 3 were killed and 25 were released, no symptoms of rabies having developed.

The questionable cases given in the preceding table may be briefly referred to as follows: 6 dogs and 1 cat were killed or

died, having shown symptoms which might indicate rabies but on which the laboratory could arrive at no definite diagnosis; 2 were killed or died, report on which was considered unreliable; 2 "contact cases" escaped quarantine and were not again located.

During the past year the Division received reports of 383 persons having been bitten by dogs, and 6 persons having been bitten by cats. Eighty-two of these persons were bitten by 54 of the dogs classified in the tables as positive cases. In all cases of dog bite which are reported, the dog is immediately quarantined for observation except in cases where the animal is immediately killed. Of the cases of dog bite reported, 298 were inflicted by dogs proved not to be affected with rabies. One case was that of a dog on which laboratory examination was questionable, and 2 cases of bite were by dogs which are still in quarantine for observation.

It is deemed advisable, in all cases where possible, that the heads of animals supposed to be affected with rabies should be examined at the laboratory in order to confirm diagnosis. During the past year laboratory examination has been made of the brains of 268 dogs, 7 cats, 1 swine and 1 horse. Of this number, 203 dogs and 1 horse showed positive evidence of the disease.

Of the 948 animals reported for observation, diagnosis or quarantine during the year, 39 dogs were, as far as could be ascertained, ownerless and unlicensed, 29 of which proved to be positive cases of the disease.

An early symptom in very many cases of rabies in dogs is a tendency to wander away from home, and before an owner has noticed any change in the animal. As showing the distance a case may travel before being apprehended, 1 dog was killed in the town of Rockland, which was owned in New Bedford; 1, killed in Dartmouth, was owned in Wrentham; 1, killed in Millbury, was owned in Wellesley; 1, killed in Attleboro, was owned in Providence, R. I.

As showing the wide variance in the incubation period of rabies, the following tabulation, covering 37 contact cases, may be of interest:—

1 dog developed rabies on the 5th day.						
1 dog	"	"	"	"	9th	"
7 dogs	"	"	"	"	between the 10th and 20th day.	
1 calf	"	"	"	"	"	"
1 goat	"	"	"	"	"	"
10 dogs	"	"	"	"	20th	"
1 dog	"	"	"	"	30th	"
3 dogs	"	"	"	"	40th	"
2 dogs	"	"	"	"	50th	"
1 dog	"	"	"	"	60th	"
2 dogs	"	"	"	"	70th	"
1 dog	"	"	"	"	80th	"
1 dog	"	"	"	"	90th	"
1 dog	"	"	"	on the 137th day.		
1 dog	"	"	"	"	210th	"
4 dogs	"	"	time uncertain.			

—
37

Attention is called to the fact that the shortest period of incubation was 5 days, and the longest period 210 days.

Our quarantine period is fixed at 90 days, that being considered a safe time at which to release contact dogs not showing symptoms of the disease. The cases having a longer period of incubation are so few that they should be considered exceptions.

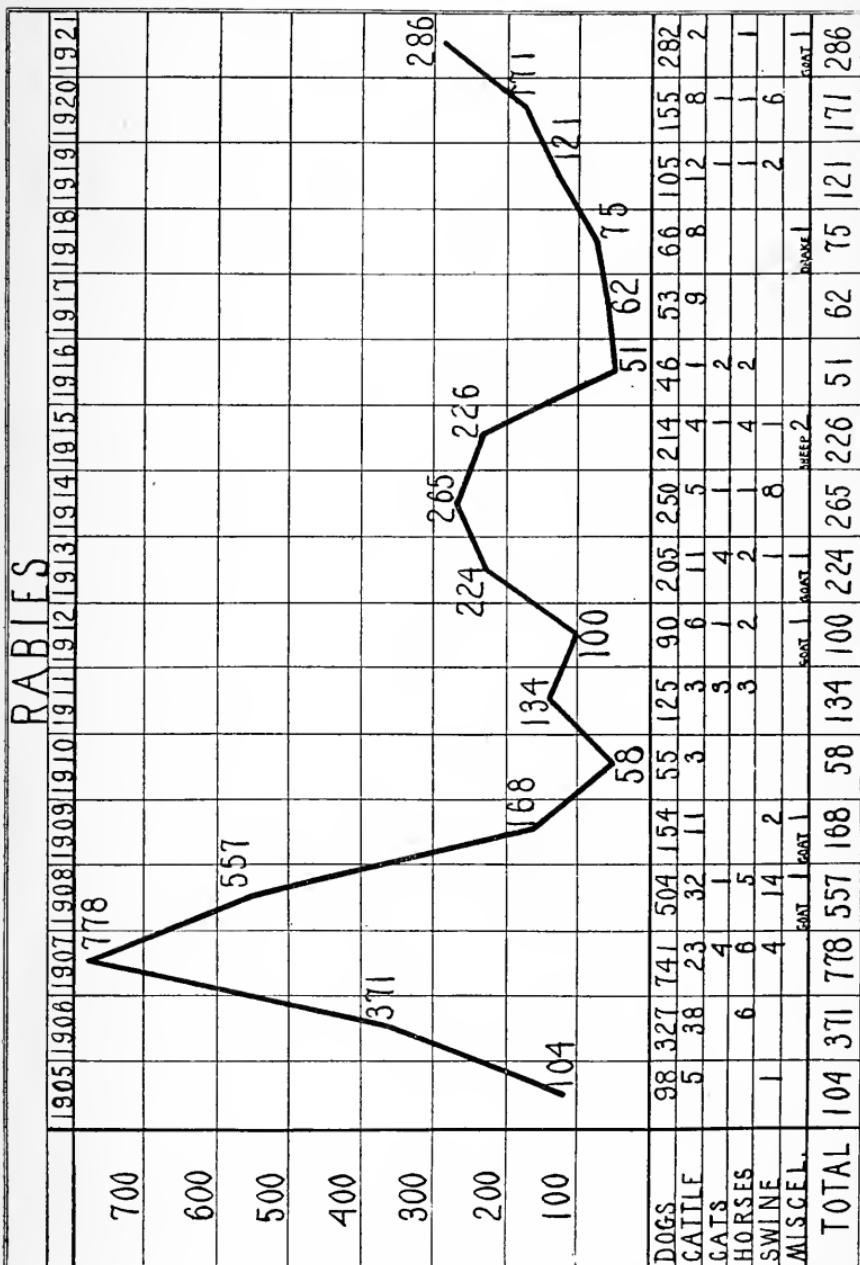
The following table shows the number of positive cases of rabies, by cities and towns, during the year ending Nov. 30, 1921:—

CITY OR TOWN.	Dogs.	Cattle.	Horses.	Goats.
Abington	5	-	-	-
Acushnet	2	-	-	-
Arlington	5	-	-	-
Attleboro	3	1	-	-
Belmont	1	-	-	-
Billerica	1	-	-	-
Boston	14	-	-	-
Braintree	2	-	-	-
Bridgewater	5	-	-	-
Brookline	10	-	-	-
Cambridge	2	-	-	-

CITY OR TOWN.	Dogs.	Cattle.	Horses.	Goats.
Dalton	11	-	1	-
Danvers	1	-	-	-
Dartmouth	9	1	-	-
Dedham	5	-	-	-
Dighton	3	-	-	-
Dudley	3	-	-	-
Duxbury	1	-	-	-
East Bridgewater	1	-	-	-
Easton	1	-	-	-
Everett	2	-	-	-
Fall River	22	-	-	-
Foxborough	1	-	-	-
Gloucester	1	-	-	-
Groveland	1	-	-	-
Haverhill	2	-	-	-
Hingham	2	-	-	-
Holbrook	1	-	-	-
Hull	2	-	-	-
Lawrence	1	-	-	-
Lexington	3	-	-	-
Lincoln	1	-	-	-
Lowell	1	-	-	-
Lunenburg	1	-	-	-
Lynn	4	-	-	-
Lynnfield	1	-	-	-
Mansfield	1	-	-	-
Medfield	1	-	-	-
Medford	2	-	-	-
Melrose	2	-	-	-
Middleborough	1	-	-	-
Millbury	1	-	-	-
Milton	4	-	-	-
Natick	2	-	-	-
Needham	5	-	-	-
New Bedford	24	-	-	-
Newton	4	-	-	-
North Attleborough	4	-	-	1
North Brookfield	1	-	-	-
Norwell	2	-	-	-

CITY OR TOWN.	Dogs.	Cattle.	Horses.	Goats.
Norwood	8	-	-	-
Oakham	1	-	-	-
Pittsfield	7	-	-	-
Quincy	5	-	-	-
Randolph	1	-	-	-
Reading	5	-	-	-
Rehoboth	1	-	-	-
Revere	1	-	-	-
Rockland	1	-	-	-
Salem	1	-	-	-
Saugus	5	-	-	-
Sharon	1	-	-	-
Shirley	3	-	-	-
Somerset	1	-	-	-
Somerville	4	-	-	-
Springfield	1	-	-	-
Stoneham	2	-	-	-
Sudbury	2	-	-	-
Swampscott	2	-	-	-
Taunton	12	-	-	-
Wakefield	1	-	-	-
Watertown	1	-	-	-
Webster	11	-	-	-
Westport	2	-	-	-
Westwood	2	-	-	-
Weymouth	1	-	-	-
Whitman	1	-	-	-
Wilmington	3	-	-	-
Winchester	1	-	-	-
Winthrop	2	-	-	-
Woburn	1	-	-	-
Worcester	6	-	-	-
Wrentham	1	-	-	-
Totals	282	2	1	1

Following is a chart showing the proved cases of rabies in the several species of animals covering the period from 1905 to 1921, inclusive.



HOG CHOLERA.

Next in importance to its work in control of contagious diseases of cattle is that now being carried on by the Division in the protective treatment of swine against hog cholera, and also when necessary the preventive or curative treatment to those exposed to or affected with any of the many other infections to which they are susceptible.

In recent years more attention has been given to swine diseases than formerly. They were causing a serious loss which was tending toward complete failure of this class of live stock to adequately contribute to the public food supply or in a degree that might reasonably be expected. Hog cholera was fast decimating Massachusetts herds of swine, especially where garbage was being used as their principal food. On account of this material being a recognized carrier of contagion, the economic utilization of this great waste of the household was threatened unless the ravages of this disease could be controlled.

The Division's work in this direction was commenced in 1914 after a complete survey of the situation. Its plans were carefully drawn, methods of execution were studied in minute detail, and a system of procedure was inaugurated which is in operation at the present day with very few changes other than those in technique, as dictated from time to time by experience.

The great economic value of this State work lies in its preventive aspect. It is a line of effort parallel to the direction of all medical progress of the present day, *i.e.*, prevention of disease rather than cure, thus rendering unnecessary all the time, trouble and expense of curative treatment.

During the year the number of protective inoculations against hog cholera administered by Division inspectors constituted about 70 per cent of the total number of swine found on the farms at the latest inspection in the spring of 1921. Numbers of these animals were found to have rapidly reduced since the count made one year before, the decrease amounting to about 25 per cent, namely, about 25,000 head. This condition is regrettable from the standpoint of the well-recognized necessity

for increased production in every line of endeavor if living conditions are to improve, but it is acknowledged that market rates paid the hog raiser for the past two years have been altogether too low to encourage the raising of larger numbers, and have in fact discouraged maintaining the industry at a level anywhere near the normal.

The decrease in the swine industry this year owing to market conditions would naturally have diminished the amount of the Division's work in their protection from disease, but we find such not to be the case. It has been a low year in the incidence of hog cholera in this section of the country, although present local prevalence and reports from the Middle West indicate a gradual return to its former wide prevalence, and to a type showing as formerly a higher degree of virulence.

The number of preventive inoculations administered to swine this year is about the same as in 1920. The percentage of them now protected against hog cholera is probably larger than at any time since this work was undertaken.

As a contagious-disease control work which if successful was bound to become of large magnitude, it was deemed necessary to so regulate it by official order at its very beginning as to avoid the danger acknowledged to be present in an unrestricted or indiscriminate use of the active virus of the disease, the only successful method of treatment yet developed, and which calls for the careful use of this dangerous material; therefore, it must be handled by men responsible to some authority.

Another necessity seemed to be the selection of veterinarians for this work who, physically able to perform the strenuous labor of restraining and treating swine, should at the same time be inclined to make a thorough study of a new problem and intelligently interpret their field experiences.

We also decided it to be vitally necessary that all biological preparations used, although manufactured under the United States Bureau of Animal Industry license, should be proved by our *own* tests to be potent, and thereafter held and stored under our control and direction.

In no way could all these important phases of the plan be taken care of other than to restrict the field work to veterinarians responsible to a central head, subject to orders changed

from time to time as conditions indicated the necessity; men who would be available for daily consultation with the Director and for discussion with their fellow workers, all these requirements being necessary in order that every individual worker might have the benefit of the composite experience of the entire force of workers.

The proving by test of all products used in treatment was arranged for and has been continued, and the use of them has, by Department order, been restricted to veterinarians selected by the Director and under his supervision.

The soundness of the policies above indicated has been proved, and the efficiency of the work is a matter of record. We find this to be readily acknowledged by live-stock owners.

We respectfully submit that our present methods should be continued, and that any proposed legislation to modify them should be opposed as against public interest as a whole and the swine industry in particular.

Following is a list of cities and towns in which hog cholera prevention work has been carried on during the year ending Nov. 30, 1921:—

CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
Abington	1	7	6	13
Acushnet	2	4	4	11
Adams	1	67	5	72
Agawam	13	84	52	136
Amesbury	2	8	0	8
Amherst	4	88	15	103
Andover	1	28	0	28
Arlington	3	10	14	24
Athol	2	17	32	49
Attleboro	5	34	88	122
Auburn	3	10	18	28
Ayer	1	109	50	159
Barnstable	3	19	21	40
Becket	1	40	28	68
Bedford	1	31	12	43
Belmont	6	822	464	1,286
Beverly	1	209	109	318
Billerica	3	77	86	163
Bolton	4	11	28	39
Boston	5	487	846	1,333
Boylston	1	22	0	22
Brantree	3	267	157	424
Bridgewater	3	141	120	261
Brockton	3	1,058	1,011	2,069
Brookfield	4	66	29	95
Brookline	1	12	0	12
Burlington	2	115	16	131
Cambridge	1	10	2	12
Canton	1	9	7	16

CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
Charlton	3	45	28	73
Cheshire	1	2	0	2
Chicopee	20	309	196	505
Clarksburg	1	6	0	6
Clinton	8	19	8	27
Dalton	1	59	33	92
Danvers	3	356	201	557
Dartmouth	5	84	209	293
Dedham	5	20	23	43
Deerfield	1	71	32	103
Dighton	1	27	20	47
Dracut	2	9	16	25
Dudley	5	18	17	35
East Bridgewater	2	3	19	22
East Brookfield	2	0	5	5
Easthampton	4	24	7	31
East Longmeadow	1	1	0	1
Easton	2	8	5	13
Edgartown	2	3	5	8
Essex	1	16	13	29
Fall River	4	132	72	204
Fitchburg	16	135	259	394
Foxborough	2	88	39	127
Framingham	2	169	216	385
Gardner	8	1	0	5
Georgetown	1	0	2	2
Gill	1	10	33	43
Gloucester	10	354	231	585
Grafton	9	216	417	633
Granby	1	5	0	5
Great Barrington	1	5	0	5
Greenfield	5	126	123	249
Greenwich	1	15	13	28
Groton	1	22	0	22
Hadley	1	14	2	16
Hamilton	1	5	0	5
Hampden	1	8	6	14
Hardwick	1	0	15	15
Harvard	4	20	11	31
Haverhill	4	31	15	46
Hingham	1	5	5	10
Holden	8	25	40	65
Holyoke	11	233	153	386
Hudson	1	17	0	17
Huntington	3	7	0	7
Ipswich	2	37	24	61
Lakeville	1	130	189	319
Lancaster	4	19	0	19
Lawrence	1	91	53	144
Leicester	3	11	5	16
Leominster	1	94	32	126
Lexington	21	2,230	2,326	4,556
Lincoln	8	336	231	567
Littleton	4	66	84	150
Longmeadow	3	620	371	991
Lowell	6	354	184	538
Ludlow	8	496	271	767
Lunenburg	2	61	23	84
Lynn	3	68	27	95
Lynfield	1	45	44	89
Manchester	3	12	6	18
Marblehead	8	153	123	276
Marion	1	29	7	36
Mattapoisett	1	2	0	2
Medfield	3	227	159	386
Medford	3	27	49	76
Methuen	6	30	22	52
Milford	5	121	31	152
Millbury	5	65	73	138
Milton	4	139	85	224
Monson	2	66	6	72
Natick	3	230	108	338
Needham	8	128	146	274

CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
New Bedford	3	35	65	100
Newbury	3	15	16	31
Newburyport	11	46	6	52
Newton	8	211	203	414
Norfolk	3	47	74	121
North Adams	5	124	49	173
Northampton	15	445	333	778
North Attleborough	3	105	87	192
Northbridge	3	146	106	252
Northfield	1	94	48	142
North Reading	1	76	92	168
Norton	1	10	31	41
Norwood	1	14	14	28
Orange	2	11	8	19
Otis	1	7	0	7
Oxford	6	15	47	62
Palmer	1	6	0	6
Paxton	1	42	44	86
Peabody	13	434	301	735
Pepperell	2	21	53	74
Pittsfield	18	763	209	972
Plymouth	2	106	165	271
Provincetown	32	82	3	85
Quincy	3	140	132	272
Randolph	2	104	34	138
Reading	2	46	0	46
Rehoboth	2	12	25	37
Revere	8	1,664	892	2,556
Richmond	1	0	1	1
Rockport	2	103	17	120
Rowley	1	11	0	11
Rutland	2	84	133	217
Salem	4	337	193	530
Salisbury	2	1	9	10
Saugus	9	117	44	161
Seekonk	10	543	312	855
Sharon	1	4	11	15
Shelburne	2	12	0	12
Sherborn	2	164	145	309
Shirley	1	48	51	99
Shrewsbury	2	101	328	429
Somerset	1	0	3	3
Southbridge	5	10	44	54
South Hadley	15	165	32	197
Springfield	21	1,224	453	1,677
Sterling	1	7	2	9
Stoughton	4	6	0	6
Sudbury	1	11	0	11
Sutton	2	0	13	13
Swansea	4	1,974	1,219	3,193
Taunton	5	381	388	769
Templeton	9	85	32	117
Tewksbury	1	263	112	375
Townsend	2	10	13	23
Tyngsborough	1	6	0	6
Upton	1	3	0	3
Wakefield	3	9	34	43
Walpole	4	20	53	73
Waltham	11	1,970	1,700	3,670
Wareham	1	0	2	2
Watertown	1	20	39	59
Wayland	2	12	11	23
Webster	13	40	40	80
Wellesley	2	90	8	98
Wenham	1	7	3	10
Westborough	4	253	247	500
West Boylston	1	33	67	100
Westfield	9	129	160	289
Westford	2	8	0	8
Westminster	3	25	3	28
West Newbury	1	11	0	11
Weston	5	74	22	96
Westport	2	9	21	30

CITY OR TOWN.	Herds inoculated.	INOCULATIONS.		
		Serum and Virus.	Serum only.	Total.
West Springfield	4	41	92	133
Westwood	3	193	60	253
Weymouth	2	56	28	84
Whately	1	3	0	3
Whitman	2	3	20	23
Wilbraham	3	38	67	105
Wilmington	1	66	171	237
Winchendon	2	1	5	6
Woburn	9	286	229	515
Worcester	10	2,490	5,203	7,693
Wrentham	3	170	48	218
Yarmouth	1	1	0	1
Totals .	740	29,031	25,315	54,346

The preceding table shows that work has been done in 187 cities and towns this year, 13 less than during 1920, but necessitating 1,635 visits by one or more inspectors. In addition there were 112 visits made to places where the swine were not treated for the following reasons: the animals in some instances had no chance of recovery; in others the trouble was found to be some non-contagious infection; again in some of the cases proper sanitary conditions necessary to successful work could not be established; and in a few cases the owners did not desire to have the animals treated.

Comparative statistics in detail are shown in the following table, and the chart on page 44 shows in a general way the hog cholera prevention work from the time of its inception to the present:—

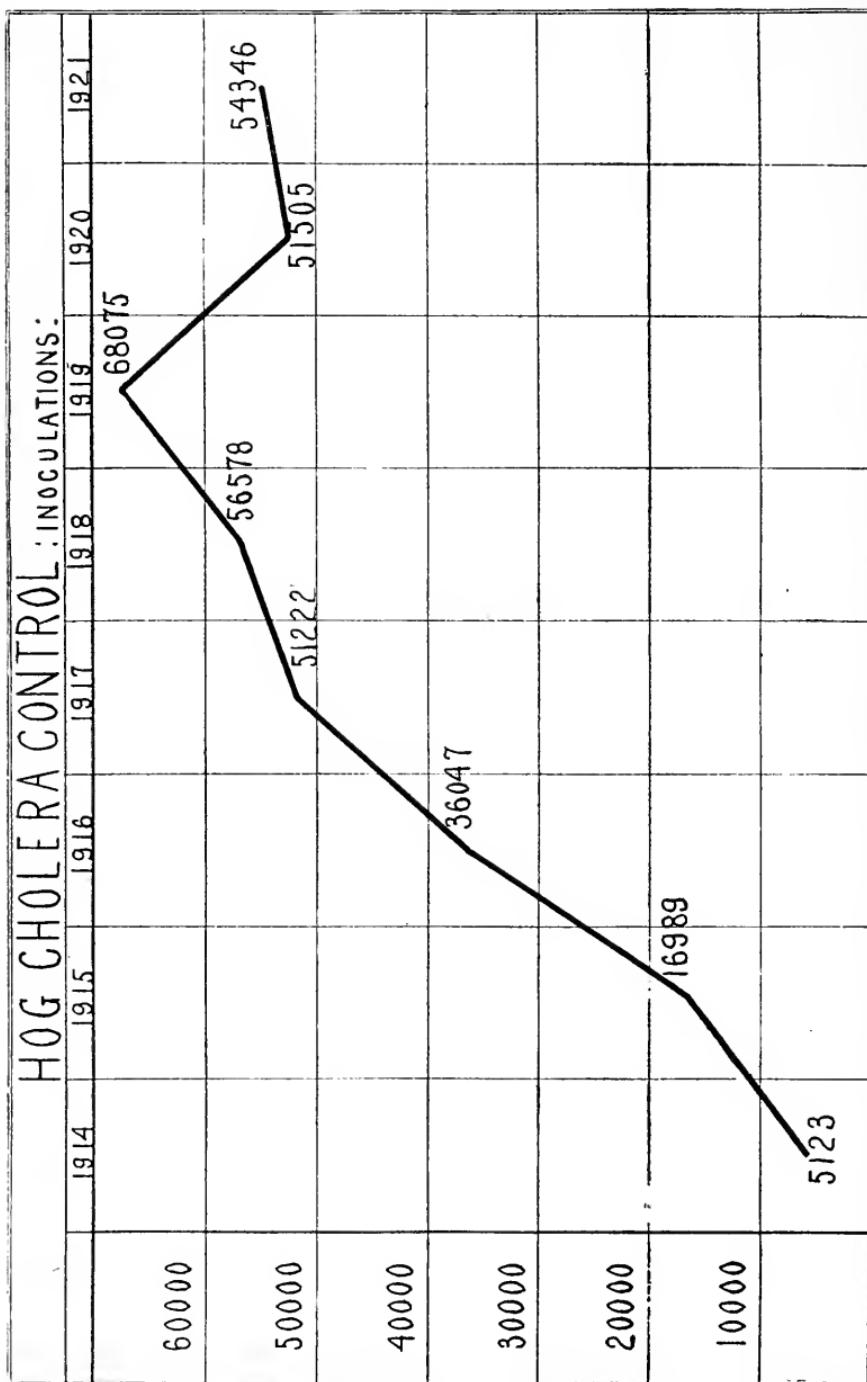
Comparative Statistics on Hog Cholera Control Work from 1914 to 1921, inclusive.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
<i>General Herd Statistics.</i>								
Herd known to be infected	80	227	253	359	232	184	89	159
Infected herds treated	65	150	192	282	157	149	47	135
Infected herds not treated ¹	-	77	43	77	75	35	42	24
Negative diagnoses in reported outbreaks	20	122	57	42	39	54	41	36
<i>Treatments in Infected Herds.</i>								
Serum (includes infected, uninfected, and very young animals)	428	10,300	14,747	24,828	7,559	3,076	5,813	9,322
Serum and virus (to healthy animals)	591	5,826	13,643	15,524	4,055	1,282	6,393	6,782
Total treatments	1,019 ²	16,126	28,390	40,352	11,614	4,358	12,206	16,104
Mortality in serum treatments (per cent) ³	9.5	7.0	3.70	1.75	3.90	5.5	1.27	2.80
Mortality in serum and virus treatments (per cent) ³	2.0	1.2	.60	.44	2.26	2.1	.33	.74
Mortality in total number (per cent) ³	5.2	4.9	2.21	1.24 ⁴	3.34	4.5	.78	1.92

Preventive Treatments in Healthy Herds.

Number of herds	.	.	.	.	.	.	2	95	113 ^b	470 ^b	1,275	1,440	785	581
Number of inoculations	.	.	.	.	.	.	104	863	7,657	10,870	44,754	63,717	39,299	38,242
Number of animals which died	.	.	.	.	.	.	0	1	0	3	8 ^c	42 ^c	51	41
Total number of treatments	.	.	.	.	.	.	5,123	16,989	36,047	51,222	56,768	68,075	51,505	54,346

¹ Due to animals being too sick to treat, showing symptoms of secondary infection, or to owners not desiring the same.² Plus 4,000 which were treated, and died or were killed before results could be ascertained. These deaths were due to the use of serum which was impotent and virus which was not virulent, before the present regulations were made.^a These figures show percentages, not animals.⁴ This does not include approximately 50 animals which died on one farm, on which a final diagnosis was not made. Clinically and by autopsies, it was impossible to determine whether the disease was hog cholera or hemorrhagic septicemia. Laboratory examinations indicate the latter, but before the work could be completed the losses stopped, and more material which was needed for a final diagnosis was not available.⁵ The large majority under this classification are herds which in previous years were classified as infected herds and which had yearly sustained heavy losses from hog cholera. The majority of them are garbage-fed, and experience shows that should treatments be discontinued an outbreak of hog cholera would follow very closely. They are therefore classified as herds in which no infection was apparent at the time of treatment, whereas in reality they are infected herds in which the disease is kept completely under control while treatments are continued.⁶ None of these animals were autopsied; consequently, we are unable to say whether or not death was due to cholera.



The preceding pages of statistics tabulating eight years' work of this Division in control of hog cholera may be interpreted and considered as a fairly correct history of the actual prevalence of the disease in Massachusetts, except during the earlier years in the table when the work had only commenced and was not known to swine owners generally.

The high point of our work in 1919 was reached when hog cholera was raging extensively in many different sections of the country. This was followed by a "low" year in 1920 all over the country. Early in 1921 the Middle West reported rapidly increasing prevalence of the disease, its virulence also becoming very much intensified. We began to note the same condition appearing in this State in the early fall months, and it is still continuing at much the same rate at the date of this report. All indications point to a largely increased amount of control work for the winter and spring months.

Total eradication of hog cholera cannot be looked forward to with any degree of confidence, as the very nature of the infection and the unfavorable conditions under which the susceptible animals are maintained preclude any such result of even the most carefully planned and well-executed measures.

Closely supervised, well-regulated service by a well-organized unit responsible to a central head will undoubtedly control the disease within reasonable limits. Unquestionably it would be a serious mistake to relax in any particular the restrictions now applying to the sale and use of hog-cholera serum and virus,—products which in their careful administration by well-trained men make for positive control of the disease, but in the hands of untrained men not responsible to any authority become a certain means of spreading the disease and defeating the purpose of their manufacture and use.

We call particular attention to the mortality rates shown in the preceding tabulation as in a concrete way showing the quality of the work; it is generally recognized that careless administration, faulty technique, and errors in judgment are the principal factors in increasing the mortality rate. Massachusetts records in this work as shown by this tabulation of years will bear comparison with that of any yet published. They have always commanded special attention and have brought forth much commendation by interested observers.

The sanitary conditions under which swine are kept, while found to be somewhat improved from year to year, are nevertheless far from what they ought to be. We have found in many instances where serious losses of animals have occurred that the primary causative factor has been unsanitary or poor housing conditions, which have lowered the vitality and the normal resistance of animals to disease, allowing bacterial invasion a favorable opening. Such conditions also seriously handicap recovery from disease and delay the elimination of infection. While perfect sanitary conditions are hard to obtain in piggeries as generally managed, yet very great improvement can be made on many premises and would be followed by results which undoubtedly would be evident in more pigs, healthier pigs, and consequently a better financial showing.

At the present time the diseases of swine are probably receiving more attention on the part of swine raisers, veterinarians, live-stock sanitary officials and those engaged in scientific research than at any period in the history of control work in contagious diseases of animals. The ultimate result will undoubtedly be the solution of many of the control problems which now confront us.

By reason of our work in the control of hog cholera we have been brought in close touch with many other disease conditions, some of which are of serious menace to the raisers of swine. In their clinical aspects many so closely resemble hog cholera that differential diagnoses are difficult and only arrived at after considerable investigation both in the field and in the laboratory.

Hemorrhagic Septicemia in Swine.—This disease has prevailed quite extensively during the year. Its prevention, control and cure are intimately connected with our hog cholera work on account of the similarity of many of the symptoms presented by both diseases. A differential diagnosis is often beset with many difficulties, and our trained veterinarians who are having daily experience in the treatment of both diseases find that they need to consider all the circumstances surrounding a case, such as the history of the outbreak, symptoms exhibited, and post-mortem appearances. Even then there is possibility of both infections being present, and which is the

primary factor and what shall be the line of treatment adopted become matters dependent on the good judgment of the experienced field worker. Owing to the difficulties of such situations we believe that errors in diagnoses are more readily avoided by the Division inspector than by one of more limited experience.

Notwithstanding the use of the biological preparations for the prevention and cure of hemorrhagic septicemia is in no way restricted by law or Department order, and can be lawfully used by any registered veterinarian, the Division treats many animals affected with this disease on account of its association with outbreaks at first thought to be hog cholera and so reported, and under the premise that its duty is clearly defined in the case of outbreak of any animal disease classified as contagious. During the year 10,580 treatments in the prevention, control or cure of hemorrhagic septicemia have been administered, and all indications are that this branch of work will necessarily be continued the coming year.

Various mixed infections of swine have been encountered in our work in hog cholera. They are often coexistent with that disease and are handled as circumstances indicate necessary. The study of their importance and of their particular significance in many widely varied combinations is one of the principal present-day activities of those interested in these infections from a scientific standpoint.

MISCELLANEOUS DISEASES.

Anthrax. — During this year only one authenticated case of anthrax has been recorded, that of one cow in a town in the central part of the State. The record is unusual in that any source of anthrax generally produces more than a single case and the case itself is almost certain to leave the infection, which is later picked up by one or more susceptible subjects even though all known precautions are taken against such occurrences.

Nearly all species of the domesticated animals are susceptible to the disease and infection of the human subject sometimes occurs, the latter generally caused by handling carcasses, hides or wool of infected animals.

No extensive prevalence of the disease in animals has occurred in Massachusetts for several years, and from the low record of this year we assume that the former sources of the contagion are gradually being eliminated. What must be a factor in this elimination is the annual protective inoculation given all animals on premises known to have been infected. As this inoculation is supposed to confer an immunity for twelve months and possibly not any longer, treatment is advised every succeeding year as the anthrax bacillus or its spores are known to retain their potency for a long period of time under favorable circumstances, and soil once infected is considered a possible source of an outbreak for many years thereafter.

During the past year preventive inoculation has been applied to 94 head of cattle on 8 different premises located in 4 towns.

Our method of procedure in reported anthrax is as follows: Every report is immediately investigated and subsequent action is taken as deemed advisable by consideration of the facts disclosed. Positive diagnosis is first necessary, and, as the animals generally either are found dead or die before arrival of a veterinarian or Division inspector, a post-mortem examination would ordinarily be depended upon to confirm the suspicions of anthrax. As post-mortem appearances in this disease are often not sufficiently characteristic to justify a positive diagnosis, and as the opening of a carcass allows the body fluids to escape and possibly spread the infection, it is advised that the suspected carcass be not opened, but that a specimen of blood be drawn from the cadaver onto a piece of glass and then allowed to dry in the air. If this specimen is not badly contaminated by careless preparation, and is promptly forwarded to a laboratory, there is no difficulty in determining whether or not anthrax bacilli are present.

A field diagnosis or suspicion of anthrax having been confirmed, preventive measures at once follow. They consist of proper disposal of diseased carcasses, disinfection of premises, and preventive inoculation of susceptible and exposed animals.

To prevent infection spreading from a carcass it should be burned or deeply buried, covered with quicklime. Anthrax bacilli or their spores if not destroyed may continue to infect soil for a long time; in many instances these organisms have

been found to remain active for a number of years. We recommend that any contaminated ground be burned over and the surface area above a buried carcass be fenced and burned over yearly. Any contaminated portions of buildings if wooden should be torn out and burned, and if concrete should be thoroughly disinfected.

The remaining animals of the herd should be at once removed to other buildings or areas, and the apparently healthy ones inoculated in prevention of the disease. Animals already affected are sometimes successfully treated, but ordinarily the disease runs such a rapid course that death takes place before the animal is noticed to be seriously sick, and our efforts are consequently limited to protection of the animals not showing symptoms. Although a certain percentage of deaths may reasonably be expected to occur among the inoculated animals, we find in actual experience that fatalities are very few.

Preventive inoculation is supposed to confer immunity for a period of at least twelve months. At premises where an outbreak has occurred and there is reason to fear permanent infection, it is advised that all susceptible animals be given a preventive inoculation each succeeding year for a certain period.

Blackleg. — This is a disease the causative organisms of which are found in the soil of infected pastures, where they multiply and through their resistant spores preserve their capacity for development even under unfavorable conditions. Animals are infected by coming in contact with such material and seldom by transmission of the disease from other animals. This explains the fact that we seldom have an outbreak in animals which are stabled, but find it always occurring during the pasture season.

It is readily prevented by inoculation of certain biological products prepared for the purpose and which confer an immunity lasting at least for one entire season. As the disease seldom develops in adult cattle, only those between the ages of six months and three years are treated in prevention.

We recommend the inoculation every season of all the young cattle on premises where the disease has been known to exist, and the best time to do this is of course just previous to the turning out of the young stock in the spring. On the occur-

rence of a new outbreak, however, all the susceptible animals should be immediately treated and as an extra precaution removed from the particular lot or pasture where the disease appeared.

We have many farms in Massachusetts where blackleg has been known to exist at one time or another, and there are undoubtedly many pastures in which young cattle have died from blackleg without the cause of death having been positively determined. It should therefore be considered a circumstance suspicious of this disease if young cattle have been found dead in pasture from no readily explainable cause. The preventive inoculation of young cattle against this disease is a service rendered by Division inspectors free of expense to owners.

During the year we have administered this treatment to 1,137 animals on 164 farms located in 51 different towns, as tabulated below:—

	Premises.		Premises.
Agawam	4	Montague	1
Ashburnham	3	New Marlborough	1
Ashby	27	New Salem	1
Ashfield	1	North Adams	1
Athol	5	Northampton	1
Auburn	1	Orange	17
Becket	2	Peru	1
Blandford	2	Pittsfield	2
Boxborough	1	Prescott	1
Brimfield	2	Rowe	4
Cheshire	1	Royalston	2
Chester	7	Shelburne	4
Dalton	1	South Hadley	1
Fitchburg	3	Southampton	2
Gardner	2	Southwick	1
Granby	1	Templeton	1
Greenwich	2	Townsend	12
Harvard	4	Tyringham	2
Holyoke	4	Warwick	4
Huntington	1	Washington	1
Lee	7	Wendell	1
Leicester	2	Westhampton	2
Leverett	1	Williamstown	3
Littleton	6	Winchendon	1
Lunenburg	1	Windsor	1
Middlefield	5		

The records show that we have treated this year 148 more animals than last year and on 21 more farms, the location of which comprised 4 additional towns. The deaths reported are 22 head of stock on 8 different premises.

The same general recommendations as in anthrax outbreaks, as to disposal of infected carcasses by burning or deep burial, are applicable following occurrence of this disease.

Actinomycosis. — Ten cases of this disease have been reported this year, located as follows: 1 each in Bridgewater, Deerfield, Duxbury, Florida, Harvard, Kingston, Norfolk, Plymouth, Southbridge and Winchester.

Of the 10 cases on this year's record, 4 have been slaughtered, 1 was released as having recovered after having been given treatment, and 5 proved to be some condition other than actinomycosis.

Hemorrhagic Septicemia in Cattle. — The prevalence of this disease in Massachusetts is of somewhat greater importance than formerly as far as number of reported deaths is concerned, the increase being 50 per cent this year. We do not, however, have the experience of many other States, which receive most of their incoming cattle from public stockyards, picking up an acute form of this infection somewhere *en route* from shipping point. Our outbreaks generally occur among pasture cattle and are characterized by sudden death generally of one creature. Removal of all the other animals in the same enclosure oftentimes stops the extension of the disease.

Preventive inoculation is, however, advised for all remaining animals in the herd which are not showing symptoms, and curative treatment of those apparently sick is quite often effective if the disease is not too far advanced. Preventive inoculation has been administered to 137 cattle this year. Prompt report generally means prompt relief of a situation of this kind, and as a laboratory examination is often necessary for positive diagnosis, we encourage the early shipment of specimens in suspected cases.

Our records this year show 33 deaths from hemorrhagic septicemia in cattle, occurring in the following towns: Ashburnham, 3; Chesterfield, 4; Gloucester, 1; Hardwick, 5; Lexington, 6; Mendon, 4; Royalston, 7; West Boylston, 3.

A small number of cases of this disease in sheep was reported from the towns of Conway and Royalston, the latter case being investigated by a Division inspector.

Parasitic Diseases. — Profitable live-stock raising is not possible if infestation of farm animals with external or internal parasites exists to an extent not readily controllable. A great economical waste of good food takes place and is shown in the slower or totally inhibited growth of cattle, sheep or swine which are infested. In young stock especially, which is more susceptible to attack than adult animals, the most serious damage by these parasites is noted, often rendering the raising or further feeding of the affected animals inadvisable from an economical standpoint.

Irritation in all degrees of intensity, much acute suffering, and occasional deaths are caused by these low forms of animal life, and it certainly is opportune that the study of this variety of animal infliction is being rapidly brought to a point where practical benefits may be obtained by scientific treatment.

The most important parasitic condition brought to the attention of the Division is that known as mange, which affects large numbers of cattle during certain seasons and prevails to some extent among horses. Many fewer cases have been reported this year than usual, indicating a subsidence of this troublesome affection. While we have received reports of 170 head of cattle affected on 6 farms,—less than one-half the number reported in 1920,—we know that our reports are not a very good indication of the extent of infestation for the reason that many cattle owners do not consider their cases of sufficient importance to engage our attention.

Treatment of mange is not expensive but is very inconvenient of application, and success depends alone on faithful application of proper medicinal remedies. Owners of horses infested with the mange parasite now realize that the ridding of their animals of it means additional days' service of the animals and less food necessary to keep them in proper condition of flesh.

It is our custom to quarantine all reported cases of mange, especially if owners or attendants are not disposed to apply

proper treatment. Eighteen cases of the disease in horses have been reported this year from 8 different premises. Quarantined horses are generally allowed to work during treatment but are forbidden to enter inclosures other than their own stables.

Foot-and-mouth Disease.—Five years have now passed since this disease was eradicated from this country, but it still prevails to an alarming extent in South America and many other foreign countries with which the United States has intimate trade relations. The possibility of the infection being conveyed to this country through the channels of commerce constitutes an ever-present danger to our live-stock interests and necessitates constant watchfulness in order to promptly discover the first outbreak should this country again be visited by the contagion. Live-stock officials of the Nation and the several States are fortunately very much alive to the impending danger, and are prepared to take immediate steps to surround and control the disease at the first notice of its appearance. It is probable that all the precautionary measures now ready to be put in operation will effectively prevent any wide extension of the malady if it does appear, and will confine its prevalence within narrow limits.

Up to date the development of a serum for the immunization of susceptible animals against foot-and-mouth disease has not progressed to a point showing it to be of practical value in control work, and it is probable that the stamping-out process, which has always been successful in this country, would be the method pursued in fighting the contagion on its appearance.

In Massachusetts all live-stock officials, Division veterinarians, local inspectors of animals, and private veterinarians have been notified of the real danger of an invasion of the disease, and asked to immediately notify the Division office of any suspicious cases that are found. We have had this year reports from four different sections of such suspicious cases, but upon prompt investigation all of them proved negative.

Bovine Infectious Abortion.—Without doubt the prevalence of bovine infectious abortion is very extensive, and the losses caused by it and its many concurrent conditions are second only to those caused by bovine tuberculosis. Many dairymen

and breeders of thoroughbred cattle assert that of the two conditions infectious abortion is the more serious when the animal loss is taken into consideration and immediate profits alone are not made the basis of reckoning.

Although a condition acknowledged to be communicable from animal to animal, and one in which control measures are successful to a degree, strictly official action in this direction is of course not advisable and would be of practically no aid in local relief of such a situation. The intimate handling of a herd problem of this kind is naturally one for the private veterinarian to cope with, and the functions of live-stock officials would seem properly to be limited to rendering such aid as might be given by advice regarding the general management of infected herds, and how to carry out the various sanitary measures recognized as essential to progress in the control of any infection.

Sale restrictions by official order may eventually be found advisable after some of the problems of this infection now being studied have been definitely solved.

Other Infectious Diseases.—Inspectors of slaughtering occasionally bring to our attention the finding of tuberculosis in swine at time of their slaughter, and in all such instances if we get the information as to what premises the animals came from, we immediately have all the cattle examined which may be thereon. The source of this disease in swine is often found in the cattle with which they are kept, and a slaughterer's report may therefore be the means of leading us to a tuberculous cow. Thirteen cases of swine tuberculosis have been reported this year from 11 different towns.

Tuberculosis in horses occurs only very rarely, but one such case has been reported this year. It is interesting that it occurred in the practice of the same veterinarian who reported an unusually severe case of this disease two years ago. No connection between the two cases can be established, however, as they were 10 miles apart. The case this year was in a draft horse stabled for some years in town and where there had never been any bovine animals. Unfortunately the type of the bacillus, whether human or bovine, was not determined.

Avian tuberculosis is probably very prevalent among poultry,

and is a serious menace to many flocks. The Division's office is, however, very seldom notified of its existence or called upon for advice regarding its control or extermination.

In the late summer and early fall each year a contagious affection of the eyes of cattle breaks out in different sections of the State. If not immediately attended to, it is very apt to spread until all members of a herd are affected, some of which suffer partial or complete blindness. Not many of these outbreaks are reported to the Division's office, only 3 being reported this year. They are locally controlled under veterinary advice, and early treatment generally prevents serious results.

Infectious pneumonia in cattle was reported in one instance, 9 members of a herd being affected.

The Division has frequently been called upon to make examination of animals suspected of being affected with a contagious disease, and where it has been found that the animals were suffering from a disease not of a contagious nature.

LABORATORY SERVICE.

The Division of Animal Industry is most fortunate in having at its service the bacteriological laboratory of the State Department of Public Health, where are made the many examinations necessary to the successful prosecution of its work.

There are many instances in contagious disease control where correct diagnosis can only be made in the laboratory, and many additional instances where diagnoses made from the exhibition of clinical symptoms or from macroscopical appearances post mortem are not entirely satisfactory unless corroborated by the findings of a trained bacteriologist. The value of this service as a constant auxiliary to the progress of the Division's work and to its maintenance at a proper standard of efficiency is immeasurable. We are pleased to testify to the fine spirit of co-operation exhibited by this organization in the solution of many of the Division's problems.

One important service rendered us this year has been the examination of the brains of 277 animals submitted because

suspected of rabies. Prompt and positive conclusions as to the existence or non-existence of this infection are necessary, and especially so if persons have been bitten by the suspected animals. Complement-fixation tests of 126 samples of blood taken from horses suspected of or exposed to glanders have been made. In addition to these principal services, 45 specimens have been examined, listed below by diseases suspected:—

	Positive.	Negative.
Actinomycosis	1	1
Anthrax	-	3
Carcinoma	1	-
Glanders	-	1
Hemorrhagic septicemia	11	5
Infectious abortion	2	3
Multiple infarct	1	-
Nephritis	1	-
Nodular disease	2	-
Osteomyelitis	1	-
Tuberculosis	6	11
	26	24

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES.

In accordance with the provisions of chapter 129, sections 18 to 26, inclusive, of the General Laws, an order calling for the inspection of all cattle, sheep and swine in the State and the premises on which they are kept was issued by the Director Jan. 10, 1921, to the inspectors of animals of all towns and cities.

A gross tabulation of the information contained in the reports of this inspection follows. The inspection was completed in a majority of the cities and towns during the late winter and early spring months.

Total number of herds of cattle inspected	31,054
Number of herds containing not over 5 dairy cows	21,273
Number of neat cattle inspected	230,981
Number of dairy cows inspected	160,192
Number of herds found clean and in good condition	29,981

Number of stables inspected	31,791
Number of stables properly drained	31,552
Number of stables well ventilated	31,422
Number of stables sufficiently lighted	31,063
Number of stables found clean	30,703
Number of stables in which improvements were recommended	917
Number of herds of swine inspected	12,151
Number of swine inspected	76,527
Number of herds of swine garbage-fed	1,807
Number of swine garbage-fed	41,662
Number of sheep inspected	15,503
Number of goats inspected	1,329

An important showing in this tabulation as compared with that of the previous year is an increase in the total number of cattle of 4,181, and of those designated as dairy cows an increase is shown of 5,785. This increase of dairy cows, taken with that shown last year over the year 1919, makes a total increase of approximately 9,600 in the last two years. We have now a total of over 160,000 dairy cows in Massachusetts, a larger number than for many years.

Going over the period of the last fifty years we find the average yearly count of dairy cows to be approximately 160,000. Whereas several times during that period the number has dropped to about 140,000, it is a cause for congratulation that at present we have a number well above the average for that long period, and, contrary to the frequently expressed opinion of many men supposedly well informed as to the live-stock industry of the State, we find that our dairy animals are *not* gradually disappearing from the farms, but on the other hand are constantly increasing in number.

A large decrease in the number of swine found on the farms is noted, amounting to about 25 per cent, and due principally to market conditions. These are commented upon in the section of this report referring to contagious diseases of that species. We predict that when market conditions again approach the normal there will occur a proportionate increase in the number of these animals.

The number of sheep in the State has also decreased somewhat, undoubtedly influenced, as with swine, by the prevailing

high prices of fodder and the low prices of marketed carcasses used for food.

The preceding tabulation is compiled from the reports of local inspectors of animals. These consist of individual records of conditions at all premises where cattle, sheep and swine are kept. The tabulation relates not only to the animals themselves but also to the sanitary condition of the barns, stables and yards. From the reports a fairly correct and comprehensive survey may be drawn of the general health conditions of the live stock on Massachusetts farms, and of the intimate surroundings having a bearing on the maintenance of such health conditions at a proper standard. The study of this survey is of great value in formulating our general policies both in disease control work and for progress in the campaign for betterment of stabling conditions.

Inspectors' reports also furnish the only correct "census" which is made of farm animals in the State, and in that connection are of interest and value not only to the Division and the Department of Conservation but to other State departments, also to individuals and associations interested in the breeding and raising of live stock, or engaged in any of the many lines of business closely related thereto.

In many instances cases of contagious disease not previously reported are found. Such are immediately quarantined and brought to the notice of Division officials, and an important work in disease control is executed.

In many other instances unhealthful stabling conditions are brought to the attention of owners, and recommendations for improvement are suggested and insisted upon. If these are not attended to within a reasonable length of time, the cases are brought to the attention of Division officials who, either through the district veterinary inspector or through correspondence direct with the owner, endeavor to have them carried out. District veterinary inspectors have during the past year made 1,294 visits to premises where insanitary conditions existed, and in a majority of instances full or partial correction of them has resulted.

In connection with the references made to the statistics gathered by local inspectors of cities and towns, and the many

ways in which such statistics are of value as well as of extreme interest, the importance of inspectors' services, of varied character, in connection with sudden outbreaks of contagious disease, such as rabies, should be mentioned, also their work in identification and release of animals shipped from other States. These officials are a very necessary part of our organization, and according as they are observant, prompt to act, and faithful in performance of their duties render the Division valuable aid in the execution of its work in control and eradication of disease.

Meetings of inspectors of animals were called at different points in the State for the purpose of discussing matters of mutual interest to them and to the Division officials. These meetings, in charge of Division officials, are held in the fall of each year. They are acknowledged by the inspectors to be of considerable value to them in that many questions relating to the performance of their duties under unusual circumstances are made clear. The personnel changes somewhat each year, a certain percentage of new men taking the places of those who for one cause and another are no longer in the service, and the meetings are to a certain extent schools of instruction for the recently appointed inspectors. They gather much information not only in the sessions but by private conversation with fellow inspectors of longer service and with the Division officials in charge.

The meetings this year were held at different points, as follows: Greenfield, November 8, attendance 20; Pittsfield, November 9, attendance 21; Springfield, November 10, attendance 20; Worcester, November 15, attendance 32; Boston, November 16, attendance 82.

REPORTS OF RENDERING COMPANIES.

Section 154 of chapter 111 of the General Laws requires rendering companies to report to this Division every animal received by them which is found to be infected with a contagious disease, and the information thus furnished is of value in bringing to the attention of the Division occasional cases of these diseases which otherwise would not be known. A table of reports of rendering companies follows:—

RENDERING COMPANIES.

	Number of Reports.	Number of Cases of Glanders.	Number of Cases of Tuberculosis.	Number of Cases of Glanders not previously reported.	Number of Cases of Tuberculosis not previously reported.
Abbott Tallow Company, Holyoke	1	1	-	-	-
Ayer Rendering Company	1	-	2	-	-
C. S. Bard, Haverhill	1	-	3	-	1
John J. Erwin, Wayland	2	1	1	-	-
Home Soap Company, Millbury	7	-	66	-	2
Lowell Rendering Company	23	-	41	-	2
W. H. Nankervis, Marlborough	1	-	1	-	1
New England Rendering Company, Brighton	1	1	-	-	-
Parmenter & Polsey Fertilizer Company, Peabody.	4	-	4	-	1
N. Roy & Son, South Attleborough	11	-	24	-	-
Springfield Rendering Company	1	1	-	1	-
N. Ward Company, Boston	6	1	6	-	-
Totals	59	5	148	1	7

NOTE. — All the above cases are included in statistics occurring elsewhere in this report.

RECEIPTS OF LIVE STOCK AT THE STOCKYARDS IN BOSTON AND VICINITY FOR TWELVE MONTHS ENDING Nov. 30, 1921.

For several years, at the request of the United States Department of Commerce and Labor, a report of the receipts of all live stock at Boston has been sent to Washington each month. The following table shows the receipts by months for the past year:—

FOR MONTH OF —	Cattle.	Calves.	Sheep.	Swine.	Horses.
December	9,242	10,521	28,899	81,650	716
January	8,517	9,418	17,221	83,793	779
February	6,973	9,650	23,680	78,964	1,339
March	9,001	20,858	28,352	57,944	2,194
April	7,907	23,661	22,567	37,293	1,776
May	11,842	23,838	32,167	64,026	2,124
June	8,090	15,089	26,958	69,504	1,436
July	7,235	13,471	26,604	79,963	1,028
August	9,819	15,305	43,738	72,342	1,128
September	9,394	12,696	20,369	46,323	1,064
October	11,997	14,568	37,096	44,369	952
November	17,908	17,815	48,756	71,223	1,217
Totals	117,925	186,890	356,407	787,394	15,753

FINANCIAL STATEMENT.

Appropriation for the salary of the Director, chapter 203, Acts of 1921	\$3,500 00
Expended during the year for the salary of the Director	3,500 00
Appropriation for personal services of clerks and stenographers, chapter 203, Acts of 1921	\$8,100 00
Expended during the year for the following purposes:—	
Personal services of clerks and stenographers	\$7,522 50
Extra clerical and stenographic service	58 78
Total expenditure	\$7,581 28
Unexpended balance	518 72
	\$8,100 00
Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 203, Acts of 1921	\$3,800 00
Transferred from small item account	16 81
Total amount appropriated	\$3,816 81
Expended during the year for the following purposes:—	
Books and maps	\$119 28
Express and messenger service	274 44
Postage	791 42
Printing report	160 05
Other printing	1,155 19
Telephone and telegrams	648 20
Stationery and office supplies	354 09
Expenses of the Director	314 14
Total expenditure	\$3,816 81
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 203, Acts of 1921	\$50,000 00
Brought forward from 1920 appropriation	5 00
Total amount appropriated	\$50,005 00
Expended during the year for the following purposes:—	
Services of regular agents	\$34,847 92
Services of per diem agents	8,886 00
Labor hired	106 00
Total expenditure	\$43,839 92
Unexpended balance	6,165 08
	\$50,005 00
Appropriation for the traveling expenses of veterinarians and agents, chapter 203, Acts of 1921	\$24,000 00
Expended during the year for the following purposes:—	
Traveling expenses of regular agents	\$16,568 04
Traveling expenses of per diem agents	4,444 22
Total expenditure	\$21,012 26
Unexpended balance	2,987 74
	\$24,000 00

Appropriation for reimbursement of owners of cattle and horses killed, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services, and for laboratory and veterinary supplies and equipment, chapter 203, Acts of 1921	\$65,000 00
Supplementary appropriation, chapter 502, Acts of 1921	20,000 00
Brought forward from 1920 appropriation	8,757 40
Total amount appropriated	\$93,757 40
Expended during the year for the following purposes:—	
1,955 head of cattle condemned and killed on account of tuberculosis in 1919, 1920, 1921, paid for in 1921	\$89,081 30
11 horses condemned and killed on account of glanders and farcy in 1918, 1920, 1921, paid for in 1921	600 00
Supplies for veterinary inspectors	301 38
Laundry	393 35
Antiseptics, biologics and disinfectants	778 29
Thermometers, needles, syringes, etc.	409 82
Ear-tags, punches, chains, etc.	746 53
Expenses of killing and burial	347 50
Expenses of travel allowed inspectors of animals	614 98
Quarantine expenses	11 33
Rent of quarantine office	120 00
Sundries	64 50
Total expenditures	\$93,468 98
Unexpended balance	288 42
	\$93,757 40

The average amount paid for condemned tuberculous cattle this year is \$43.90.

Two hundred and twenty-five claims for reimbursement for cattle condemned and killed as tuberculous during the year, amounting to \$9,353, remain unsettled, to be paid on proof.

Claims applying to 2 horses condemned and killed during the year because affected with glanders remain unsettled, the claims not having been proved. The amount of these claims is \$100.

There has been received during the year from the sale of hides and carcasses of condemned animals \$307.49.

Respectfully submitted,

LESTER H. HOWARD,
Director.



The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1922

DEPARTMENT OF CONSERVATION



BOSTON
WRIGHT & POTTER PRINTING CO., STATE PRINTERS
32 DERNE STREET

PUBLICATION OF THIS DOCUMENT
APPROVED BY THE
COMMISSION ON ADMINISTRATION AND FINANCE.

The Commonwealth of Massachusetts

DEPARTMENT OF CONSERVATION.

DIVISION OF ANIMAL INDUSTRY,
BOSTON, Nov. 30, 1922.

To the Commissioner of Conservation.

I have the honor to present the following report of the work of this Division for the year ending Nov. 30, 1922.

The functions of the Division of Animal Industry and the duties of its officials may be described as follows: Inspection and examination of horses, cattle, sheep and swine within the Commonwealth, and of the sanitary conditions under which they are kept; the execution of measures in prevention, control or cure of contagious disease among them and the other species of domestic animals; the condemnation and slaughter when necessary of such as are affected with, or have been exposed to, contagious disease, to be followed by the burial or other disposal of their carcasses; the cleansing and disinfection of districts, buildings or places where contagion exists or has existed. Another duty is the enforcement of regulations applying to the transportation of horses, cattle, sheep and swine from other States to Massachusetts, in order that their condition of health may be established and no prevalence of contagious disease be caused by the entry of infected animals. This regulatory work calls for the inspection and mallein testing of many horses, and the examination and tuberculin testing of such cattle as are to be used for dairy or breeding purposes and are not accompanied by satisfactory records of test. Tuberculin tests of cattle of whatever age moving interstate must have been made by veterinarians authorized by State and Federal officials to do this work, and, if regulations apply-

ing thereto have not been complied with in all particulars, their violation must be investigated and proper tests applied by Division inspectors.

The maintenance of the health of the several species of domestic animals is of great importance for many reasons. It conserves the food supply of the people by bettering its quality. It materially affects the financial returns from the many lines of business with which the live-stock industry is inseparably connected. The important industry of dairying, to be financially successful, must produce large amounts of milk, butter and cheese, and to this end healthy animals are a first and prime requisite. The conservation of the health of all the species of animals whose carcasses are used for human food — cattle, sheep and swine — is necessary for their successful propagation and their rapid development to maturity or to the point where they are available as human food. Numbers are largely increased and growth is more rapid if they can be kept free from contagious disease. Not only is their money value as food animals enhanced, but the quality and amount of commercial by-products, such as hides, wool, fat, fertilizer, and many other salable ones, are much greater from healthy animals than from those stunted in growth or reduced in numbers by prevalence of disease.

Preservation of the health of the people is dependent in no small degree upon the elimination from animals of those diseases which are communicable to the human subject. Glanders, tuberculosis, rabies, anthrax and actinomycosis carry a high rate of mortality in man, and a diseased animal is often found to be the source of the contagion. For this reason it is vitally important that this class of diseases be prevented, controlled or, if possible, eradicated from the animal kingdom.

Agriculture in very many of its branches is so dependent upon successful live-stock raising, and prospers in such a direct ratio to the number of animals produced and maintained on the farm, that there is no question as to the superior economy in raising and maintaining only such animals as are healthy. Satisfactory revenue from the investment of time, labor and capital in farm animals can only be returned by horses, cattle, sheep, swine and poultry which are sound and

not inhibited in their propagation, growth and economical use by contagious disease.

In considering the work of this Division of the Department of Conservation, and in argument that it is important as a public State activity, we call attention to the fact that each succeeding year there is shown an increased dependence of the public for food and raiment upon domestic animals, as represented not only by dairy products and the meat value of the carcasses of cattle, sheep and swine, but also by their products used in the manufacture of clothing, such as wool and leather. That their carcasses may be found fit for human food at the time they are converted to that use, it is necessary that the animals shall have been raised under proper sanitary conditions, and maintained free of contagious disease up to that time. In the country as a whole the carcasses of thousands of animals are yearly condemned as unfit for food on account of lesions of contagious disease being found at time of slaughter. It is an economic necessity of the State and Nation that this great waste be reduced to a lower point than has yet been reached. Although progress in this direction is yearly advancing through the active co-operation of Federal, State and municipal authorities to this end, the Division of Animal Industry recognizes that its work of elimination of animal diseases has a broad field for expansion, and that its duty in relation to an increased food and raiment supply for the people is well defined.

Following is a gross summary of the work of the Division for the year ending Nov. 30, 1922:—

CATTLE.

- 25,569 Massachusetts cattle were physically examined by inspectors.
- 2,458 Massachusetts cattle were tuberculin tested by Division veterinarians.
- 3,019 Massachusetts cattle were tuberculin tested by Federal and State co-operation.
- 2,998 interstate cattle were tuberculin tested by Division veterinarians.
- 8,800 tested interstate cattle were examined at Brighton and their test records viséed.
- 5,424 tested interstate cattle were inspected and identified at other points.
- 1,101 animals on 164 farms in 44 towns were given preventive treatment against blackleg.

91 animals on 15 farms in 7 towns were given preventive treatment against anthrax.

66 animals were given preventive treatment against hemorrhagic septicemia.

1,511 visits to unsanitary premises were made by district veterinarians.

HORSES.

524 tests for glanders were made by Division veterinarians.

3,081 interstate horses were examined by inspectors.

5 tests of whole stables were made by Division veterinarians.

44 horses were given preventive treatment against anthrax.

Dogs.

1,401 cases of possible rabies in dogs were investigated.

SWINE.

67,909 head of swine were treated in prevention or cure of hog cholera.

7,283 head of swine were treated in prevention or cure of hemorrhagic septicemia.

MISCELLANEOUS DISEASES.

198 cases of miscellaneous diseases were investigated by Division veterinarians.

BOVINE TUBERCULOSIS.

Ever since the isolation of the micro-organism which is the cause of tuberculosis and the recognition which immediately followed of its transmissibility from one bovine animal to another, the State of Massachusetts has been engaged in an effort to control the disease by limiting its prevalence. It was early found to exist in a very large number of our herds of cattle and was not confined to any one section of the State. It was also found to be constantly increasing as circumstances of environment favored its spread and contributed to its development. It could be foreseen that its unopposed advance from one group of cattle to another would result in steadily increasing the losses to the live-stock industry and that this would also indirectly affect in a similar way many allied agricultural and other business interests.

The great importance of control measures was therefore recognized promptly, and such measures as were in accordance

with the most intelligent thought of the time were devised and put in operation. These measures were authorized by the Legislature, carried out by our live-stock officials, and generally well supported by public sentiment. They have necessarily varied from time to time as developing circumstances indicated change to be desirable, but the prominent objectives have always been an effective control of the disease and as much progress toward complete eradication as could possibly be made.

Although it must be conceded that control of this great plague has to a certain degree been gained, and all the evidence at hand shows that the number of animals in advanced stages of tuberculosis has materially decreased in recent years, yet the extent of progress toward real eradication has been disappointing. While by stricter quarantine measures, improved methods of diagnosis, "follow-up" inspections of infected herds, improved service of inspectors, encouragement of tuberculin testing, and complete co-operation of veterinarians we feel that great advance has been made in the disclosure and subsequent slaughter of active spreaders of the disease, we have for a long time realized that the situation as a whole was unsatisfactory and one to which any new plan promising more in the way of permanent improvement should be welcomed.

In recent years many owners of valuable herds of cattle in this State have taken advantage of the perfected tuberculin test and by the service of private veterinarians have succeeded in ridding diseased herds of the infection and establishing them as *tuberculosis-free*. Although in many instances the financial loss has been heavy — too great for the ordinary cattle owner to withstand — such instances have clearly demonstrated that eradication of the disease in herd units is possible. The Division of Animal Industry has also shown this to be possible in a considerable number of instances where badly infected herds have in recent years been tuberculin tested, upon request of their owners, and freed from the disease. However, not until legislation could be obtained authorizing the payment by the Commonwealth of indemnity to owners of cattle slaughtered because of reaction to an official tuberculin

test could any general movement toward eradicating tuberculosis by this plan be expected. The proportion of reacting cattle to be found in herds previously untested might in many instances reasonably be feared to be so large as to cause financial disaster to their owners if indemnity were not provided for.

The Legislature of 1922, in chapter 353, Acts of 1922, authorized the payment of indemnity for reacting cattle officially tuberculin tested in accordance with rules and regulations prescribed by the Director of Animal Industry, and later appropriated a limited amount of money therefor.

This new law, which became effective Aug. 1, 1922, put in operation a plan for the eradication of bovine tuberculosis radically different from anything attempted in Massachusetts during recent years. Although the Division of Animal Industry had tuberculin tested a great many herds of cattle at owners' request, it had never before been authorized to pay for the animals which reacted to the test and were slaughtered. When the new law authorizing payment of indemnities went into effect, many applications for the official test were already on file. The Federal government had agreed to co-operate with the State in doing the testing and in the payment of indemnities, provided their so-called "tuberculosis-free accredited herd plan," now in operation in every other State in the Union, were adopted and its requirements properly protected by our rules and regulations for carrying on the work. To such owners as desired the test for their herds this co-operative plan was offered for their acceptance. Its financial advantages were readily seen, and thus far all testing has been carried on under this plan, although owners have the privilege of having their animals tested under the provisions of the Massachusetts law alone if they so elect.

The new plan at once became so popular that within a few weeks of its first application the appropriation for State indemnities — \$15,000 for the balance of the fiscal year ending Nov. 30, 1922 — had been exhausted. This was largely due to the high percentage of reactors disclosed by the test and the fact that so large a proportion of them were pure-bred cattle, for which the indemnity is twice that paid for grade animals.

An additional appropriation of \$5,000 was obtained by transfer from other funds and authorized by action of the Governor and the Executive Council. This additional appropriation allowed the continuance of the work which had necessarily been suspended by exhaustion of the original appropriation.

Owing to the popularity of the new plan and the fact that present indications point to its rapid growth in favor, it is estimated that a much larger appropriation for 1923 will be required to comply with the requests of cattle owners for this service. It is hoped, however, that a widespread elimination of tuberculous animals by means of a general adoption of the accredited herd plan will result in a progressive decrease of the present prevalence of the disease, and as a consequence the present large amount annually expended will eventually be proportionately decreased. For the past thirty years the State has averaged to spend \$50,000 annually in payment for physical cases of bovine tuberculosis, and in 1921 the payment amounted to nearly \$90,000, an amount which of itself suggests the necessity for adopting any new plan of extermination which may promise relief of the present situation.

For such bovine animals as have been found by physical examination alone to be affected with tuberculosis, the maximum amount to be paid by the Commonwealth for any one case has recently been \$60. The Legislature of 1922, however, reduced this maximum to \$25, and it further provided that after Aug. 1, 1923, no indemnity whatever can be paid for this class of cases.

In our opinion the reduction mentioned, from \$60 to \$25, was wise and the present maximum of \$25 takes care of the situation in a reasonable way, with a fair protection of owners' interests, and will immediately reduce the amount of this item of expenditure to less than one-half its present total. The effect, however, of withdrawal on Aug. 1, 1923, of all reimbursement for cattle condemned on physical examination may prove to be unfavorable to final eradication of the disease.

If an owner cannot be reimbursed by the Commonwealth for a tuberculous animal which is condemned on official examination, it is of no pecuniary advantage to him to report

it, and he will fail to do so in most instances. He dislikes the publicity of the matter, which cannot be entirely avoided, and will probably do one of two things,—either he will kill and bury the diseased animal on his own place, or he will sell it for whatever he can get.

In the first instance, because not reported, no veterinary examination of the remainder of his herd will be made for the purpose of disclosing additional cases which may be as necessary to be disposed of as was the original case. No disinfection of the premises where the diseased animal was kept will be ordered, as is now found to be necessary in order to prevent further spread of the disease, and which order under present regulations must be carried out before the owner can obtain reimbursement for his condemned animal. If he sells the diseased animal, for which he could probably get only a small price, on leaving his premises it may carry the disease to other cattle and perhaps will be used as a cheap milk supply for a family of children. That portion of the population ignorant or unaware of the danger of milk from tuberculous cows is a market for this class of animals, and it would seem that, out of consideration for the public health alone, traffic in them should be prevented.

In our opinion the wisdom of the policy of no reimbursement for cattle condemned because affected with tuberculosis may well be questioned. Granted it will immediately effect a saving of State money, yet looking to the future, and considering not only the unhampered spread of the disease we are spending money to control but also the danger from tuberculous milch cows to the public health, would it not be better for the Commonwealth to buy and bury these diseased animals rather than allow them to spread the infection broadcast? A very small indemnity per head would result in their being reported to the proper officials, and their being reported is the only thing necessary to their proper disposal, because they then receive official attention and are promptly slaughtered.

During the year just closed we have followed the same policy of disclosing as many physical cases of tuberculosis as possible by requesting an early examination by local inspec-

tors, the quarantining of such animals as showed any suspicious symptoms, thorough physical examination of them by veterinary inspectors, condemnation and slaughter of all positive cases, a "follow-up" inspection of every herd in which any case has been found, and finally the cleansing and disinfection of infected premises.

This policy in all its details has been carried out during recent years and has been the one relied upon to effect a control of the disease and keep it within reasonable limitations. It is undoubtedly true, however, that final extermination cannot be expected or satisfactory progress made in that direction so long as tuberculous animals are allowed to remain in a herd until they show clinical symptoms sufficiently well marked to arouse the suspicion of the owner or of the local inspector of animals.

The diagnostic value of the tuberculin test carefully applied and interpreted by competent veterinarians is very generally recognized, and should be taken advantage of at every opportunity for the purpose of disclosing the non-clinical cases. Without its aid satisfactory control of the prevalence of tuberculosis among our cattle is not possible. The application of official tests at request of cattle owners has shown a steady increase each succeeding year, but the number of animals so tested has been such a small percentage of the total number in the State that no appreciable effect on eradication has been noticed. Now that it is possible under the new law enacted by the 1922 Legislature to pay indemnity for cattle which react to an official tuberculin test, and believing that the advantages of service under the provisions of this law will be widely sought for by cattle owners, it is confidently hoped that substantial decrease in the prevalence of the disease will soon be evident.

The amount of tuberculin testing which will be done, and the number of cases of tuberculosis which will thereby be removed from our herds, will necessarily depend upon the amount of money appropriated therefor by the Legislature. It would seem to be an important public work of conservation, not only on account of its intimate relation to the live-stock industry as

a commercial business of large proportions, but as an aid in the maintenance of a normal food supply for the people and directly in protection of the public health.

Tuberculin test reactors appear this year as a greater factor than ever before in our statistics. Comparing the last five years' records, we find the percentage of reactors to total number killed as follows: 1918, 23.5 per cent; 1919, 28.1 per cent; 1920, 33.4 per cent; 1921, 30 per cent; 1922, 38.7 per cent. In other words, more than one-third of all the tuberculous cattle killed under our supervision this year were reactors to a tuberculin test and killed for that reason. Very few of these cases could have been detected by physical examination.

Division inspectors have tested 2,458 head of cattle on 53 farms, 276 reactors being found. Federal inspectors have tested 5,120 animals, 101 reactors being found. Tests by Federal and State co-operation, under the provisions of chapter 353, Acts of 1922, were applied to 3,019 cattle on 127 farms, 666 reactors being found and 26 suspects. Private veterinarians have reported tests of 3,606 cattle on 204 premises, among which 824 reactors were found.

The tests recorded as "co-operative" were made after the passage of the new legislation referred to and by agreement with the United States Bureau of Animal Industry inspector in charge of tuberculosis eradication in this section of New England.

Referring to what is really a new plan of tuberculosis eradication in this State, under the 1922 legislation mentioned above, special attention may be called to a few significant facts that appear in the record of this work. In the short time the plan has been in operation — four months — more herds of cattle have been tuberculin tested than during any other entire year in the recent history of the State's work. The number of tests has increased each succeeding month, the month of October only being an exception on account of exhaustion of the first appropriation for indemnities. A rapid decrease in the percentage of reactors found — from 27 per cent in the first month of operation to less than 17 per cent in the fourth month — indicates that some badly infected herds were the first ones to be submitted for test, and that their owners had

been cognizant of the real conditions and had only been awaiting legislation more favorable to the disposal of reactors to the test.

In comparing the total reactions of pure-bred cattle with those of grade animals, we find them to be 17.8 per cent of the former and 25 per cent of the latter. The relative difference is not as great as might be expected considering the extra care given to, and precautions taken with, the more valuable animals of pure breeds, and that grade cows constitute the larger portions of herds in which dairying of an intensive character is carried on, in some instances even to the extent of rapidly lowering vitality and resistance to disease.

It must be said in passing that the number of cattle tested to date is not great enough to permit of an estimate of the prevalence of tuberculosis among Massachusetts cattle as shown by the tuberculin test, and that an entire year's work is necessary as the basis of a reasonable appraisal of the real situation.

Interstate Cattle.

In accordance with present regulations of the Federal government, all dairy or breeding cattle of whatever age shipped interstate must have passed a tuberculin test applied by veterinarians approved by the live-stock officials of the State where tested and by the chief of the Bureau of Animal Industry, United States Department of Agriculture.

A modification of this regulation is, however, applicable to cattle shipped to so-called "public stockyards" which are under the supervision of Bureau officials and where the animals can be tested upon arrival. On July 1, 1919, the Brighton cattle market was designated as "public stockyards," and such of the dairy or breeding cattle in the weekly shipments to that point as have not been tested before shipment are tested by inspectors of the Bureau of Animal Industry and of this Division working in co-operation. Check tests are also made from time to time on interstate cattle supposed to have been properly tested before shipment, in order that the quality of this work done in other States may be determined.

Additional quarantine stations for the receipt of animals for Brighton market are maintained at Watertown and Somerville,

at which points many of the cattle destined for that market are unloaded. The protection of Massachusetts cattle interests at these points is carefully attended to by our force of inspectors, and we feel sure that no cattle which can be suspected of tuberculosis are released for any purpose except immediate slaughter.

Brighton stockyards being the only point in the State to which untested cattle may be shipped, in strict compliance with Federal regulations, our former work of testing at other points is reduced to a minimum and consists only of testing such animals as may arrive not accompanied by a record of tuberculin test. A few violations of the regulations occur, some of them through ignorance of Federal and State requirements, and others in willful disregard of them. These latter cases are investigated when reported and prosecution in the courts is instituted if deemed advisable.

There have been received at the Brighton quarantine station during the year 11,682 head of dairy cattle. Of these, 8,800 were accepted on approved records of test, and 2,882 were tuberculin tested after arrival. The majority of these animals were released for sale, a few being disposed of for slaughter. At other points in the State 5,585 dairy cattle were received, making the total number of interstate dairy cattle recorded 17,267.

GLANDERS.

The prevalence of this disease among the equine species in Massachusetts is apparently under perfect control at the present time and all indications warrant the expectation of complete extermination in the near future.

Steady progressive decrease in prevalence is shown from year to year since 1913. In that year was reached the peak of what had been a gradual increase in number of cases during a long period. During that one year 1,084 positive cases were killed, 556 of which were found in the city of Boston.

During the present year 21 cases have occurred in the whole State, only one of which was in Boston. Of these 21 cases, 10 were contact cases taken from two stables in each of which one clinical case occurred, and the others were disclosed by application of the mallein test to all the animals. The record

this year shows ten more cases than in 1921, for which increase the two stables mentioned are apparently responsible, and the increase therefore does not show that the general situation is to be regarded as indicating any serious change.

Notwithstanding the fact that the prevalence of this disease is low, and unimportant from a disease control standpoint, it is necessary to closely watch the situation and if possible keep it at its present satisfactory aspect. We are consequently applying the same regulations to interstate traffic in horses and mules, and are pursuing the same methods of handling outbreaks of the disease as have been found effective in lowering the high record of 1913 to its present figure.

Although the horse as a necessity in many lines of business and as a means of healthful recreation and pleasure has been to some extent replaced by motor vehicles, it has been conclusively shown that he cannot be entirely dispensed with in any of these lines of usefulness. He is still the economic power for the average New England farm and for many lines of commercial business. That he is indispensable in military operations has been conclusively shown by his service in the late war. The saddle horse is by no means decreasing in numbers, but, on the other hand, has returned to and is now exceeding his former popularity. This is also true of the light driving animal used for speed purposes. Wherever animal expositions are held the horses of all the different types — draft, coach, saddle and speed — receive the greatest attention and win the admiration of the larger number of spectators.

In recent years the horse has become of priceless value in the field of preventive medicine, and is now used in large numbers for the production of various biological preparations found effective in the prevention and cure of many diseases of animals and man. He must therefore still be produced in considerable numbers and be maintained free from contagious disease.

The successful methods by which the number of cases of glanders has been rapidly reduced in the past few years, and which have apparently solved what was formerly a difficult problem of disease control, may be briefly referred to as follows: —

Immediate quarantine of all reported cases; prompt killing of all clinical cases, followed by disinfection of the premises where kept, of the blacksmith shops where shod, and of watering troughs where they were in the habit of drinking; examination and re-examination of all contact animals, together with application of the several diagnostic tests when necessary; extension of the plan of testing whole stables; closing of public watering troughs in sections where an outbreak of the disease occurs; testing of all horses and mules shipped interstate from New York, New Jersey, Connecticut and Rhode Island, unless accompanied by satisfactory records of recent tests.

There were 72 horses reported during the year as suspected of glanders, and these, with 151 contact animals, were subjected to the mallein test. Of this number, 21 were killed as positive cases; 2 died and 1 killed, no lesions of glanders being found, and 199 were released from observation.

The Massachusetts Society for the Prevention of Cruelty to Animals, the Boston Workhorse Relief Association, the Animal Rescue League, and the branches of these various associations in many cities and towns of the State have, through their agents, always been of material aid to the Division in the work of controlling glanders. Their close observation of working animals of all classes has in the past, when the disease was more prevalent, brought to light many showing suspicious symptoms, which they have promptly reported to this Division, and many of the animals so reported have proved to be positive cases of the disease.

The constant activity of the humane societies in removing disabled animals from work and destroying those which, on account of extreme age or poor condition, are no longer useful has undoubtedly been a factor in the suppression of glanders, as such animals are very susceptible to infection.

Two hundred and seventy-nine samples of blood, taken from 188 horses during the year, were examined in the laboratory by the complement-fixation test. The ophthalmic mallein test has been applied to 196 State and 145 interstate horses during the year.

There were 3,229 horses shipped into Massachusetts from

the States of New York, New Jersey, Connecticut and Rhode Island, accompanied by permits from the Director of Animal Industry. All of these horses were released after physical examination or application of the ophthalmic mallein test.

It is worthy of notice that no interstate horses were found during the past year to have been affected with glanders. Many of the animals brought from the above-mentioned States are of the better class, being highly bred horses used for carriage work and breeding purposes. The second-hand horses, which are trafficked in and sent from the markets of one State to those of another for purpose of public sale, have been specially watched on account of their being considered more liable to be subjects of contagious disease than the higher class animals, and if not accompanied by a satisfactory certificate of test have been tested on arrival by inspectors of the Division.

RABIES.

Rabies, a specific infectious disease, is prevalent in practically all civilized countries and especially so in the United States.

Its prevalence in Massachusetts is one of the most serious problems with which the Division of Animal Industry has to contend, and its rapid increase in the past two years has called attention to the importance of marshaling every available force which can be employed to limit its further extension. When once established in a community, it maintains itself for a considerable time, and its complete eradication requires much well-directed effort. The control of its prevalence, however, is ordinarily accomplished fairly promptly in a community where it breaks out if all agencies can be lined up against it and if these function thoroughly and systematically. We find that it progressively spreads from one town or city to another until gradually many different sections are involved. In addition to the loss of animals, some of them highly valued for one reason or another, the prevalence of rabies always carries with it more or less danger to human life. As the restraint of animals is necessary to its suppression, regulatory measures are called for, and these are the cause of much trouble, expense and irritative inconvenience to the dog-owning public.

Rabies is primarily a disease of animals, all the various

species being susceptible to it. The dog, however, is the one most often affected and is the chief factor in its spread from section to section. On account of its ready communicability to the human subject and the tendency of rabid animals to attack persons, the prompt application of all control methods becomes a public health duty, and should be considered a very important one. During the prevalence of rabies it occasionally happens that persons are bitten by the infected dogs, and in many instances the bite is inflicted before the animal shows sufficiently well-marked symptoms of the disease to be suspected or to put a person on guard against him. In such unfortunate occurrences, as well as in cases where persons are not able to avoid the attack of a furiously rabid animal, the Pasteur treatment in prevention of the disease is available, and if promptly applied is successful in practically 100 per cent of the cases.

As a protective health measure all dogs, whether suspected of rabies or not, which have bitten persons should be restrained and confined at least fourteen days for observation, in order that it may be positively determined whether or not they were infected at the time the biting occurred. If a local inspector or the Division of Animal Industry is notified, such animals are officially quarantined for that period and then released if no symptoms of rabies have developed.

Based on the successful prevention in man, treatment in prevention of rabies in animals is now available and has already been taken advantage of in many instances with success. The immunization of animals against the disease, conferring absolute protection to them if unfortunately exposed to the infection, has been recently developed to what is thought to be a sufficiently effective stage to offer it for practical use. Many owners of valuable dogs, when there is an unusual prevalence of rabies, are having their animals protected by this means. If immunization can be proved practicable by further experience in this direction, and if all dogs can be treated, it may be that the problem of how to exterminate rabies will be solved. The elimination of the unlicensed dogs will be first necessary, and this should be attended to now by enforcement of present laws.

The ownerless or stray dog is generally the first rabid animal to be found in any community, and the extent to which he may have spread the infection depends on how soon he has been apprehended after he developed the disease. No one being interested in the whereabouts or physical condition of the ownerless dog, he becomes an active spreader of the disease before attention is centered on him. It will thus be seen that a more rigid enforcement of the dog laws would be valuable assistance in the suppression of rabies.

Division records this year show a larger number of cases reported than in any year since 1908. In 1916 the lowest prevalence for ten years was recorded, since which time there has been a gradual increase in their numbers. It is probable that we have not yet reached the peak of the upward trend of prevalence as yearly recorded, on account of the vast amount of contagion existing all over the country, the invasion of Massachusetts by it having been forecasted in our reports.

Local inspectors of animals are familiar with the situation and are specially advised as to the importance of early quarantine, thorough investigation and prompt detailed reports to this office.

Following is a general outline of the Division's present methods in rabies control work:—

Upon report being made to the Division that a person has been bitten by a dog, the inspector of animals of the town or city in which it occurs is ordered to make an examination of the animal, and, even if it appears to be healthy, to have it restrained for a period of fourteen days for the purpose of observation. The restraint for this length of time is deemed necessary for the reason that competent authorities have shown that in some instances the bite of a dog infected with rabies may communicate the infection fourteen days before the animal shows clinical symptoms. If at the end of this period no symptoms of rabies have developed, the animal may be released. In case a person is bitten by a dog which, upon examination by the inspector of animals or any other person, shows evidence of already being affected with rabies, or there is a history of its having been in contact with a rabid animal, the dog in either case is immediately confined in strict quarant-

tine. If it is subsequently killed or dies, its head is sent at once to the Division's office, and a laboratory examination of the brain is made for the purpose of positively determining whether or not the animal was affected with the disease. Information as to the laboratory findings is promptly communicated to the person or persons who have been bitten. The State Department of Public Health is given the information received in every case of dog bite reported to this office, whether the bite has been inflicted by an animal suspected of rabies or not. We also order the local inspector of animals not only to ascertain the names of all persons who have been bitten by dogs suspected of rabies but to find out if animals have also been bitten, and if so to place the same in quarantine for a period of at least ninety days. All dogs which are found to have been in contact with a rabid animal, whether or not it appears that they have been bitten by it, are also placed in quarantine for the same period.

If an unusual number of cases of rabies is found to exist in any town or city, and the selectmen or the mayor or board of aldermen have not taken any special action in the emergency, we request them to issue a restraining order, under the provisions of section 167 of chapter 140 of the General Laws. Such an order obliges all dog owners to confine their animals to their own premises for a certain period, or take them therefrom only on leash. This restraining order is much more effective in the local control of an outbreak than is an order which compels owners only to muzzle the animals but not restrain them, as a muzzled animal let loose may in some way get the muzzle off and bite other animals or people. A muzzled dog at large may therefore become much more dangerous than an unmuzzled one which is at all times confined upon owner's premises or taken therefrom only on leash. Dogs found running at large while a restraining order issued by town or city authorities is in force may be killed on the issuance of a warrant for the same to a police officer.

Our force of district agents, all of whom are veterinarians and located in different parts of the State, together with the local inspectors of animals, of whom there is one or more in every city and town of the State, constitutes an organization

by which effective local control of an outbreak of this disease should be accomplished within a reasonably short time.

In many communities, however, where no attention is given to the enforcement of the dog license laws, and numberless stray dogs run at large without restraint of any kind, an outbreak of rabies becomes a serious matter. Active co-operation by local authorities is immediately necessary, both in enforcement of the dog laws now on the statute books and the issuance of such additional orders as the situation demands. Selectmen, mayors and aldermen should at once use the powers vested in them by law to aid in controlling a dangerous situation.

Where our organization receives co-operation of this kind,—namely, the issuing of local restraining orders and the calling upon constables and police officers for the continuous enforcement of these orders without fear or favor in a strictly impartial manner,—the prevalence of rabies is quickly limited. During the past year 30 such restraining orders were issued by local town or city authorities.

During the year ending Nov. 30, 1922, 1,411 animals were reported to the Division for diagnosis, observation or quarantine on account of the prevalence of rabies, and 44 were brought forward from the year 1921. Of these 1,411 animals, 452 dogs, 6 cattle, 4 cats, 1 horse and 1 goat were proved to be positive cases of rabies.

During the year the Division received reports of 715 persons having been bitten by dogs, 8 persons bitten by cats, and 1 by a horse. The majority of the animals which inflicted the bites were afterwards released as showing no symptoms of rabies.

Of the 1,411 animals reported for observation, diagnosis or quarantine, 95 dogs were, as far as could be ascertained, ownerless and unlicensed, 50 of which proved to be positive cases of the disease.

There has been noticed a wide variance in the incubation period of rabies, the larger number of cases, however, showing it to be between the tenth and twentieth day. Exceptional cases have shown this period to extend for a very much longer time. There is a record of one dog which developed rabies at the end of a period of fourteen months after having been

bitten, and one cow which developed rabies at the end of nineteen months after being bitten. Our quarantine period is fixed at ninety days, that being considered a safe time at which to release contact dogs not showing symptoms of the disease. The cases having a longer period of incubation are so few that they should be considered exceptions.

HOG CHOLERA.

An important work which has been carried on by the Division for several years is the treatment of swine in prevention of hog cholera. This disease formerly decimated our herds to such an alarming extent, often taking every animal in a herd within a short period of time, that it threatened to destroy the industry of swine production, especially in communities where garbage was depended upon for the principal article of their food. Household garbage if in good condition makes a satisfactory ration for swine, containing all the elements necessary for perfect nutrition. Furthermore its use as food for swine is an economic utilization of a product which formerly was entirely wasted in many communities. However, on account of this material being a recognized carrier of the infection of hog cholera, the only animals to which it could be fed with safety were those which were carrying a natural immunity to the disease, and such were few in number.

On the discovery made by Dorset and Niles, of the United States Bureau of Animal Industry, that swine could be artificially immunized against this infection, the way to control the ravages of hog cholera seemed clear, and in recent years very great success in many parts of the world has attended the work suggested by this discovery.

In Massachusetts preventive treatment of this kind has been carried on continuously under supervision of this Division since its inception in 1914. Its great economic value is beyond question, and as a work of conservation ranks next in importance to that which we are doing in control of contagious diseases of cattle.

Other diseases of swine are now being given very much more attention than formerly, and no longer is it the custom of swine owners to ignore an unusual death rate in their herds. The

success of hog cholera prevention work has probably been a factor in changing this custom. It frequently happens that in our supervision of hog cholera work we have brought to our notice the prevalence of another contagion and are able to render valuable service in its control. Among such other diseases may be mentioned hemorrhagic septicemia, commonly called "swine plague," necrotic enteritis, and mixed infections of various kinds.

Department restrictions are found to be necessary in the administration of the so-called simultaneous treatment in prevention of hog cholera, for the reason that the active virus of the disease is used in that treatment. Its careless use would result in the spread of the disease rather than its prevention. Consequently the administration of this treatment is limited by department order to veterinarians holding a permit of the Director and subject to his orders. The sale of the preparations used — anti-hog cholera serum and hog cholera virus — is also regulated by the same order.

The Division started its work in 1914 under this plan of supervision and regulation, and the policy instituted at that time has been continued in this direction without change. A further precaution has been the testing by our own methods of the potency of serum and the virulence of virus, although they are manufactured under Bureau of Animal Industry license. All such products shipped to this State are held and stored in refrigeration under our control and direction at the expense of the manufacturers.

We think that all details of our plan are well taken care of, and that the resulting work has proved the soundness of our original policies relating thereto.

We respectfully submit that in our opinion any proposed legislation to modify present methods is in opposition to public interest as a whole and the swine industry in particular.

Our records show that a total of 67,909 treatments have been administered to swine in 655 herds, in prevention and cure of hog cholera. This work has been done this year in 181 cities and towns, necessitating 1,709 visits by one or more inspectors. In addition there were 50 visits made to places where the swine were not treated for one of the following reasons: the animals

in some instances were so badly infected as to preclude all chance of recovery and their treatment would involve too great waste of time and material; in other cases the trouble was found to be some non-contagious disease, not calling for State service; again, the sanitary conditions necessary to successful work could not be established; and in a few cases owners withdrew their requests for treatment of their animals after arrival of the veterinarians at the premises.

An analysis of our record of work this year shows the following outstanding facts which are worthy of notice: the number of treatments administered has increased by 13,563, which brings the total number to within 166 of our highest record made in 1919. The analysis shows further that while our number of treatments has increased there has been a decrease in the prevalence of the infection. This indicates that swine owners are realizing that the best way to escape the ravages of hog cholera in their herds is to have their animals given preventive treatment while healthy rather than attempt to cure them after the disease has appeared.

While satisfactory control of hog cholera has been established, complete eradication cannot be looked forward to with any degree of confidence, as the very nature of the infection and the unfavorable conditions under which the susceptible animals are maintained preclude any such result of even the most carefully planned and well-executed measures.

Closely supervised, well-regulated service by a well-organized unit responsible to a central head will undoubtedly control the disease within reasonable limits. The time has not yet arrived to relax in any particular the restrictions now applying to the sale and use of hog-cholera serum and virus,—products which in their careful administration by well-trained men make for positive control of the disease, but in the hands of untrained men not responsible to any authority become a certain means of spreading the disease and defeating the purpose of their manufacture and use.

The mortality rates computed from our record show in a concrete way the quality of work done; it is generally recognized that careless administration, faulty technique and errors in judgment are the principal factors in increasing the mortality

rate. The record of this work in Massachusetts over a period of years will favorably compare with that of any yet published. Our work has always commanded special attention and has brought forth much commendation by interested observers.

The conditions under which swine are kept, while found to be somewhat improved from year to year, are nevertheless far from what they ought to be. We have found in many instances where serious losses of animals have occurred that the primary causative factor has been unsanitary or poor housing conditions, which have lowered the vitality and the normal resistance of animals to disease, allowing bacterial invasion a favorable opening. Such conditions also seriously handicap recovery from disease and delay the elimination of infection. While perfect sanitary conditions are hard to obtain in piggeries as generally managed, yet very great improvement can be made on many premises, and would be followed by results which undoubtedly would be evident in more pigs, healthier pigs, and consequently a better financial showing.

By reason of our work in the control of hog cholera we have been brought in close touch with many other disease conditions, some of which are of serious menace to the success of swine production. In their clinical aspects many so closely resemble hog cholera that differential diagnoses are difficult and only arrived at after considerable investigation both in the field and in the laboratory.

Hemorrhagic Septicemia in Swine.—This is an infectious disease of swine which prevails more or less extensively from time to time, and which often resembles hog cholera in the exhibition of its clinical symptoms. A differential diagnosis between the two diseases is often difficult even by our field veterinarians, who by daily experience are familiar with both. It is generally necessary to carefully consider all the circumstances surrounding an outbreak, such as its history, clinical symptoms exhibited and post-mortem appearances, before positively deciding which of the two infections is present. Frequently they are found coexistent, and it must then be decided if possible which is the primary and which the secondary factor, in order that a proper line of treatment may be followed.

Therefore our work in the prevention, control and cure of

hemorrhagic septicemia in swine is intimately connected with our original hog cholera control, and the field work is attended to by the same veterinarians.

Notwithstanding the fact that the use of various biological preparations for the prevention and cure of hemorrhagic septicemia is in no way restricted by law or by Division order, and that they may be lawfully used by any registered veterinarian, our field men treat many animals affected with this disease on account of its being the cause of outbreaks which were at first thought to be due to hog cholera and for which emergency their services were requested.

During the year 7,283 treatments in the prevention or cure of hemorrhagic septicemia have been administered, and the indications are that this work will necessarily be continued the coming year.

Various mixed infections have been encountered in our swine work, and have been treated as circumstances indicated to be advisable. Their widely varied combinations and what they signify constitute one of the principal present-day studies of persons interested in these infections from a scientific standpoint.

MISCELLANEOUS DISEASES.

Anthrax. — Nearly all the species of domestic animals are susceptible to this disease, and the infection is transmissible to man under certain conditions of actual contact, such as the handling of carcasses, hides or wool of infected animals.

In some previous years there have been numerous cases among cattle, but our record for the past two years shows practically no prevalence in bovine animals. During 1921 only one case was recorded and none in 1922. Such a record is remarkable considering that we have a number of farms which are classified as infected with anthrax, the germs or spores of which live in the soil for a long time, and are therefore to be considered as a possible source of an outbreak for many years. On these farms the bovine animals are regularly given preventive treatment every year, the immunity given by this treatment being depended upon as effective for at least twelve months. The low incidence of the disease, as shown by the

records of recent years, indicates that the policy of yearly preventive treatment is effective to a marked degree and should be continued.

During the year preventive treatment has been administered to 91 cattle and 44 horses on 15 different premises located in 7 towns.

Seven authenticated cases of anthrax have occurred in horses this year, all in the same town but on three different premises. Investigation of these cases indicates that in all probability they arose from a common source. The first animals to contract the disease had been stabled for a few days in a barn which had been unused for a long time. Undoubtedly this building was infected, as some evidence — based on rumor alone, however — was to the effect that a number of "mysterious deaths" of horses had occurred on these premises some years ago, and for that reason the building had never since been occupied until the horses mentioned were stabled there temporarily. This building has since been thoroughly disinfected under the supervision of a district agent of the Division and placed in permanent quarantine.

Our method of procedure in reported anthrax is as follows: Every report is immediately investigated and subsequent action is taken as deemed advisable by consideration of the facts disclosed. Positive diagnosis is first necessary; and as the animals generally either are found dead or die before arrival of a veterinarian or Division inspector, a post-mortem examination would ordinarily be depended upon to confirm the suspicions of anthrax. As post-mortem appearances in this disease are often not sufficiently characteristic to justify a positive diagnosis, and as the opening of a carcass allows the body fluids to escape and possibly spread the infection, it is advised that the suspected carcass be not opened, but that a specimen of blood be drawn from the cadaver onto a piece of glass and then allowed to dry in the air. If this specimen is not badly contaminated by careless preparation, and is promptly forwarded to a laboratory, there is no difficulty in determining whether or not anthrax bacilli are present.

A field diagnosis or suspicion of anthrax having been con-

firmed, preventive measures at once follow. They consist of proper disposal of diseased carcasses, disinfection of premises, and preventive inoculation of susceptible and exposed animals.

To prevent infection spreading from a carcass it should be burned or deeply buried, covered with quicklime. Anthrax bacilli or their spores if not destroyed may continue to infect soil for a long time. In many instances these organisms have been found to remain active for a number of years. We recommend that any contaminated ground be burned over and the surface area above a buried carcass be fenced and burned over yearly. Any contaminated portions of buildings if wooden should be torn out and burned, and if concrete should be thoroughly disinfected.

The remaining animals of the herd should be at once removed to other buildings or areas, and the apparently healthy ones inoculated in prevention of the disease. Animals already affected are sometimes successfully treated, but ordinarily the disease runs such a rapid course that death takes place before the animal is noticed to be seriously sick, and our efforts are consequently limited to protection of the animals not showing symptoms. Although a certain percentage of deaths may reasonably be expected to occur among the inoculated animals, we find in actual experience that fatalities are very few.

Preventive inoculation is supposed to confer immunity for a period of at least twelve months. At premises where an outbreak has occurred and there is reason to fear permanent infection, it is advised that all susceptible animals be given a preventive inoculation each succeeding year for a certain period.

Blackleg. — This infectious disease generally occurs during the pasture season only, as its causative organisms live in the soil, where their resistant spores preserve their ability to infect animals for a long time even under severe conditions of weather. The infection is not believed to readily pass from one animal to another, but prevails in numbers of animals only when all are exposed to the same source of contagion. This explains the fact that we seldom have an outbreak occur during that portion of the year when the animals are stabled.

It is readily prevented by treatment with certain biological

products prepared for the purpose and which confer an immunity lasting at least for an entire season. As the disease seldom affects adult cattle, only those under three years of age are treated in prevention.

As we have many farms in the State where blackleg has been known to exist at one time or another, we recommend the preventive treatment every season of all the young cattle on these premises, and the best time to do this is of course just previous to the turning out of the animals in the spring.

On the occurrence of an outbreak all the susceptible stock should be immediately given the preventive treatment and removed from the pasture in which the disease appeared, as an extra precaution. It should always be considered a suspicious circumstance if young cattle have been found dead in pasture from no readily explainable cause, as undoubtedly blackleg has killed the animals in many of these instances.

The preventive treatment of young cattle against this disease is a service rendered by Division inspectors free of expense to owners. It is quite generally availed of, and during the year the treatment has been administered to 1,101 animals on 164 farms located in 44 different towns.

This year's records compared with 1921 show 36 fewer animals treated on the same number of farms but in 7 fewer towns. Only one death has been reported.

The same general recommendations as in anthrax outbreaks, as to disposal of infected carcasses by burning or deep burial, are applicable following occurrence of this disease.

Actinomycosis. — Seventeen cases of this disease have been reported this year, located as follows: 1 each in the towns of Beverly, Charlton, Concord, Grafton, Leominster, Plymouth, Sharon and Spencer, and 3 in the town of Hancock, all of which proved to be positive cases.

Of the 17 cases reported, 8 have been slaughtered, 3 have been released as having recovered on treatment, 5 proved on investigation to be other diseases, and 1 is still in quarantine undergoing treatment.

Hemorrhagic Septicemia in Cattle. — The prevalence of this disease in Massachusetts, while very much lower than in many

other States which receive large numbers of cattle through public stockyards, is nevertheless to be carefully noted. Our outbreaks generally occur among pasture cattle, take on a very acute form, and frequently cause sudden deaths, with no opportunity for treatment. Prevention and cure are often successful, however, if the animals can be treated early and before reaching the final stages. It is our custom to advise the immediate removal of all animals from the pasture where the disease first appears, and if this is attended to, and the animals are not already showing symptoms of the disease, it generally happens that no additional cases follow.

Preventive treatment is, however, advised for all remaining animals in the herd and curative treatment for those apparently infected. Prompt report generally results in early suppression of outbreaks, and as a laboratory examination is sometimes necessary for positive diagnosis, we request the early shipment of specimens in suspected cases or where the field symptoms resemble those of anthrax, with which disease hemorrhagic septicemia is sometimes confused.

Our records this year show 28 deaths in cattle caused by hemorrhagic septicemia, in the following towns: Ashfield, 2; Fitchburg, 1; Framingham, 2; Northfield, 4; Phillipston, 4; Scituate, 6; Shelburne, 2; Templeton, 2; Tewksbury, 5. Preventive treatment was administered to 66 cattle.

An outbreak of disease in a flock of sheep in the town of Montague, which had caused 25 deaths, was diagnosed as hemorrhagic septicemia, and the remainder of the flock was immediately given preventive treatment by one of our district agents. Three additional deaths occurred following treatment.

Parasitic Diseases. — The external and internal infestation of farm animals by parasites to any extensive degree has a marked effect in reducing the profits to be gained in the raising of live stock. They cause irritation in all degrees of intensity even to the point of acute suffering and death in some instances. In all cases they inhibit growth, and therefore, when infesting cattle, sheep or swine, cause a great waste of animal products used for human food. In young animals especially the greatest damage is to be noted, often rendering their continued feeding inadvisable from an economic standpoint.

The importance of this condition and its real significance as a factor working against successful live-stock raising is being more generally recognized than ever before, and with such recognition comes the more special attention to its relief. Scientific investigations both in laboratory and field are revealing many facts regarding parasitic life which have never before been known, and the continuation of the research work in this direction promises valuable aid in the solution of many problems now confronting those engaged in the raising and development of animals to the point where their products are marketable.

Mange in its different forms is the parasitic condition most often reported to this office. Large numbers of cattle and a few horses become affected each season, the number varying widely from year to year. Fewer cases have been reported this year than usual, but we are well aware that our reports are not a very correct indication of the extent of infestation, for the reason that many cattle owners do not consider their cases of sufficient importance to demand official attention.

The successful treatment of mange in horses and cattle depends solely upon faithful application of proper medicinal remedies. These remedies are not expensive but their application is very inconvenient, the result often being that the disease prevails to a much greater extent than it should. Many owners of live stock, however, now realize that keeping their animals free from the irritation caused by the mange parasite means additional production and less food necessary to keep them in healthy condition.

It is our custom to quarantine all reported cases whose owners are not disposed to apply proper treatment. One hundred and twelve cases of mange have been reported this year on 5 premises in 4 different towns.

Nodular disease, a parasitic infection of the intestinal tract, was reported as prevailing extensively in a flock of 1,250 sheep in the town of Gosnold. No measures for relief of a condition of this kind being practical under the circumstances, the owner was advised as to slaughter. One case of parasites infesting the lungs of sheep was reported from the town of Bridgewater.

Foot-and-mouth Disease. — Although no outbreak of this

disease has occurred during the year, we have been very apprehensive regarding the possibilities of its reappearance. It has prevailed to an alarming extent in many countries with which the United States has intimate trade relations, and the channels of commerce provide a ready way for its conveyance. All kinds of merchandise furnish a suitable vehicle for its transmission; and considering its prevalence not only in the British Isles and continental Europe but also nearer by in Mexico and South American countries, it is really remarkable that an outbreak in this country has not occurred. Live-stock officials of the Nation and the several States are very much alive to the impending danger and are prepared to take immediate steps to surround and control the disease at the first notice of its appearance. By the exercise of all the precautionary measures now taken or ready to be put in operation, it is hoped that any wide extension of the disease will be prevented in case it appears.

Considerable experimental work is now being done looking to the development of a biological product to be used in the immunization of susceptible animals, but such work has not progressed to a point where it can be shown to be of practical value. The successful stamping-out method used in former outbreaks in this country will undoubtedly be relied upon in the emergency of its outbreak.

In this State all live-stock officials, Division veterinarians, local inspectors of animals, and private veterinarians have been notified of the impending danger of an outbreak and asked to immediately call this office if any suspicious cases are found.

Bovine Infectious Abortion.—The prevalence of this infection is very widespread and is second in importance only to bovine tuberculosis. The losses caused by it and its many concurrent conditions are so extensive as to command the serious attention of all dairymen and breeders of thoroughbred cattle.

We still await further knowledge of a definite nature regarding its cause, dissemination and practical control. While scientific investigators are not entirely agreed upon many important phases of the problem, especially the possibility and practicability of immunization of susceptible animals by arti-

ficial means, yet all concur in recognition of the value and absolute necessity of the well-known hygienic measures which have long been recommended in preventing the spreading of the infection in an individual herd.

Control measures to be instituted by official authority, with the idea of preventing the carrying of infection from one herd to another by restricting the sale or transfer of affected animals, may eventually be found to be advisable and necessary, but in the light of our present knowledge such official action is not deemed practicable. The intimate handling of a herd problem of this kind is naturally one to be worked out with the assistance of a private veterinarian, who should be relied upon for advice as to general herd management and the proper way to carry out the various sanitary measures recognized as essential to progress in the control of any infection.

Other Infectious Diseases. — Inspectors of slaughtering occasionally bring to our attention the finding of tuberculosis in swine at time of their slaughter, and in all such instances if we get the information as to what premises the animals came from, we immediately have all the cattle examined which may be thereon. The source of this disease in swine is often found in the cattle with which they are kept, and a slaughterer's report may therefore be the means of leading us to a tuberculous cow. Nineteen cases of swine tuberculosis have been reported this year from seven different towns.

Tuberculosis in horses, a very rare occurrence but an occasional case of which has been reported in recent years, has not been found to exist during 1922.

The Division has frequently been called upon to examine animals suspected of contagious disease which on investigation proved to be affected with disease of a non-contagious character.

Among such instances the following may be mentioned: A flock of sheep in the town of Monterey dying apparently from old age; a herd of 3 cows in Montague dying from starvation; 2 cows in Blandford suffering from a chemical poison; 1 cow in Heath infected by pus absorption; 1 cow in Princeton with a piece of wire puncturing the heart; a large number of

horses owned by a business concern in Boston, which had been maliciously injured by punctured wounds which became infected.

LABORATORY SERVICE.

The bacteriological laboratory of the Department of Public Health has rendered this Division the same valuable service as during previous years.

In our contagious disease control work there are many instances in which correct diagnosis can only be made as the result of laboratory examination, and there are many additional instances where diagnoses made from clinical symptoms or from macroscopical appearances post-mortem are not entirely satisfactory unless confirmed by the laboratory findings of a trained bacteriologist. The service of the laboratory as an auxiliary to Division investigations is therefore invaluable. From the standpoint of economy, rendering unnecessary the maintenance of a laboratory by this Division, it is a fine example of the value of co-operation between State departments.

The most important service of the laboratory this year has been the examination of the brains of 483 animals submitted because suspected of rabies. Prompt and definite conclusions as to the existence or non-existence of this infection are necessary, and especially so if persons have been bitten by the suspected animals.

Complement-fixation tests of 279 samples of blood taken from horses suspected of or exposed to glanders have been made.

In addition to these principal services, 46 specimens have been examined taken from animals suspected of the following diseases: anthrax, 9; blackleg, 2; glanders, 2; hemorrhagic septicemia, 15; tuberculosis, 11; actinomycosis, epithelioma, Johne's disease, necrobacillosis, nodular disease, pneumonia and ulcerative gastritis, 1 each.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES.

Under the provisions of section 19, chapter 129 of the General Laws, an order was issued by the Director on Jan. 10, 1922, to every inspector of animals in the cities and towns of

the Commonwealth calling for an inspection of all cattle, sheep and swine and of the premises where kept.

This order called for the completion of the inspection by March 1, and for a report of the same to be promptly forwarded to the Division's office. The inspectors' reports came forward in most instances in good season and were duly examined and tabulated in minute detail.

Grossly these reports show an increase from last year of 6,205 cattle of all classes. The number of dairy cows — 168,870 — shows an increase of 8,678 from last year, and the increase for the past two years is 14,463. This brings the total number of dairy cows in Massachusetts to a higher figure than for several years.

There were 32,650 stables inspected, showing that animals were kept on 859 more premises than in 1921.

The number of swine — 68,579 — shows a decrease of 7,948, and the number of sheep — 13,542 — a decrease of 1,961.

Inspecting the records for the past fifty years we find the average yearly count of dairy cows to be approximately 160,000. Whereas several times during that period the number has dropped to 140,000, it is to be especially noted that at present we have a number well above the average for a long period of years, and, contrary to the frequently expressed opinion of many men supposedly well informed as to the live-stock industry of the State, dairy animals are *not* gradually disappearing from Massachusetts farms, but are constantly increasing in numbers.

The decreases in sheep and swine are undoubtedly due to the high prices of fodder and the relatively low prices of marketed carcasses sold for food purposes.

A word should be said as to the character of the work done by local inspectors of animals and the value of their reports. From these reports a fairly correct and comprehensive survey may be drawn of the general health conditions of the live stock on Massachusetts farms, and of the conditions under which they are kept. Such a survey is of great aid in formulating our general policies both in disease control and in the campaign for gradual betterment of stabling conditions.

The only correct "census" of farm animals in the State is

made up from these reports, and it is not only of interest and value to the Department of Conservation but to other State departments, and to individuals and associations interested in the breeding and raising of live stock, or engaged in any of the many lines of business closely related thereto.

The emergency service of inspectors in connection with sudden outbreaks of contagious disease is invaluable, and the organization as a whole forms a very important branch of the Division's force.

Meetings of inspectors were held this year at Greenfield, Pittsfield, Springfield, Worcester and Boston. These meetings were well attended and various subjects of interest were discussed.

District veterinarians have made 1,511 visits to premises where unsanitary conditions existed and which local inspectors had failed in having corrected. In the majority of instances the final result has been a satisfactory improvement.

REPORTS OF RENDERING COMPANIES.

Section 154 of chapter 111 of the General Laws requires rendering companies to report to this Division every animal received by them which is found to be infected with a contagious disease, and the information thus furnished is of value in bringing to the attention of the Division occasional cases of these diseases which otherwise would not be known.

Thirty reports covering 76 cases of contagious diseases were received from rendering companies, 2 of which had not been otherwise recorded.

FINANCIAL STATEMENT.

Appropriation for the salary of the Director, chapter 129, Acts of 1922	\$3,500 00
Expended during the year for the salary of the Director	\$3,500 00
 Appropriation for personal services of clerks and stenographers, chapter 129, Acts of 1922	
Expended during the year for the following purposes:—	\$8,100 00
Personal services of clerks and stenographers	\$7,876 50
Extra clerical and stenographic service	77 79
 Total expenditure	\$7,954 29
Unexpended balance	145 71
	<hr/>
	\$8,100 00

Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 129, Acts of 1922	\$5,200 00
Additional appropriation granted by Legislature to cover 1921 deficiency	6 70
<hr/>	
Expended during the year for the following purposes:—	
Books and maps	\$75 00
Express and messenger service	242 84
Postage	911 84
Printing report	168 66
Other printing	1,599 77
Telephone and telegrams	651 97
Stationery and office supplies	880 75
Expenses of the Director	519 71
<hr/>	
Total expenditure	\$5,050 54
Unexpended balance	156 16
<hr/>	
	\$5,206 70
 Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 129, Acts of 1922	
Brought forward from 1921 appropriation	\$47,000 00
<hr/>	
Total amount appropriated	\$47,030 00
Expended during the year for the following purposes:—	
Services of regular agents	\$33,685 87
Services of per diem agents	7,398 00
Labor hired	100 00
<hr/>	
Total expenditure	\$41,183 87
Unexpended balance	5,846 13
<hr/>	
	\$47,030 00
 Appropriation for the traveling expenses of veterinarians and agents, chapter 129, Acts of 1922	
Brought forward from 1921 appropriation	\$23,000 00
<hr/>	
Total amount appropriated	\$23,015 40
Expended during the year for the following purposes:—	
Traveling expenses of regular agents	\$16,382 28
Traveling expenses of per diem agents	3,444 95
<hr/>	
Total expenditure	\$19,827 23
Unexpended balance	3,188 17
<hr/>	
	\$23,015 40
 Appropriation for reimbursement of owners of cattle and horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services, and for laboratory and veterinary supplies and equipment, chapter 129, Acts of 1922	
	\$71,000 00

Expended during the year for the following purposes:—

1,657 head of cattle condemned and killed on account of tuberculosis in 1920, 1921, 1922, paid for in 1922	\$58,214 00
14 horses condemned and killed on account of glanders	800 00
Supplies for veterinary inspectors	213 74
Laundry	391 62
Antiseptics, biologics and disinfectants	573 95
Thermometers, needles, syringes, etc.	663 08
Ear-tags, punches, chains, etc.	2,477 42
Expenses of killing and burial	331 30
Expenses of travel allowed inspectors of animals	623 55
Quarantine expenses	51 50
Rent of quarantine office	65 00
Rent of halls and services for inspectors' meetings	133 50
Sundries	48 00
<hr/>	
Total expenditures	\$64,586 66 ¹
Unexpended balance	6,413 34
<hr/>	
	\$71,000 00

Appropriation for reimbursement of owners of certain cattle killed in accordance with agreements made under authority of chapters 353 and 546, Acts of 1922

Transferred from the Extraordinary Fund

\$15,000 00

10,000 00

Total amount appropriated \$25,000 00

Expended during the year for the following:—

400 head of cattle killed (chapter 353, Acts of 1922)

\$12,889 32

Unexpended balance

12,110 68

\$25,000 00

The average amount paid for condemned tuberculous cattle for the entire year is \$32.41. For the first five months of the year, before the maximum indemnity as fixed by law was reduced from \$60 to \$25, the average indemnity paid on each animal was \$39.92. For the remaining seven months, during which the lowered maximum rate was in force, the average indemnity paid for each animal was \$24.26.

One hundred and fifty-five claims for reimbursement for cattle condemned and killed as tuberculous during the year remain unsettled, these claims amounting to \$4,263.

Thirty unpaid claims covering 267 cattle, to which the provisions of chapter 353, Acts of 1922, apply, remain unpaid, amounting to \$7,964.34.

¹ This amount reduced by \$120 refunded on account of expense of previous years.

A claim amounting to \$50, applying to 1 horse condemned and killed during the year because affected with glanders, remains unsettled.

There has been received during the year from the sale of hides and carcasses of condemned animals \$8.51.

Respectfully submitted,

LESTER H. HOWARD,

Director.

APPENDIX

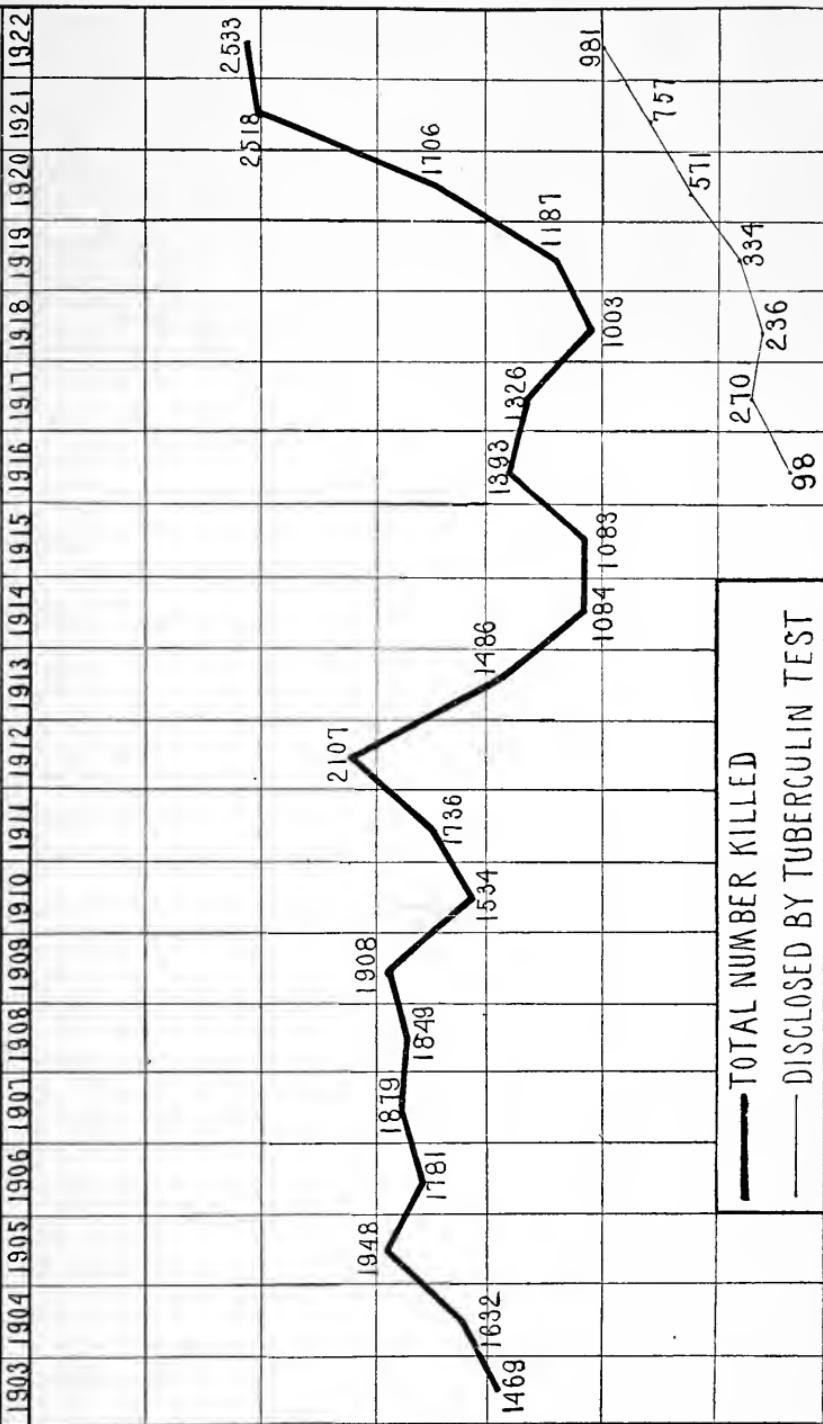
GRAPHS SHOWING THE WORK OF THE
DIVISION OF ANIMAL INDUSTRY

IN SOME OF THE

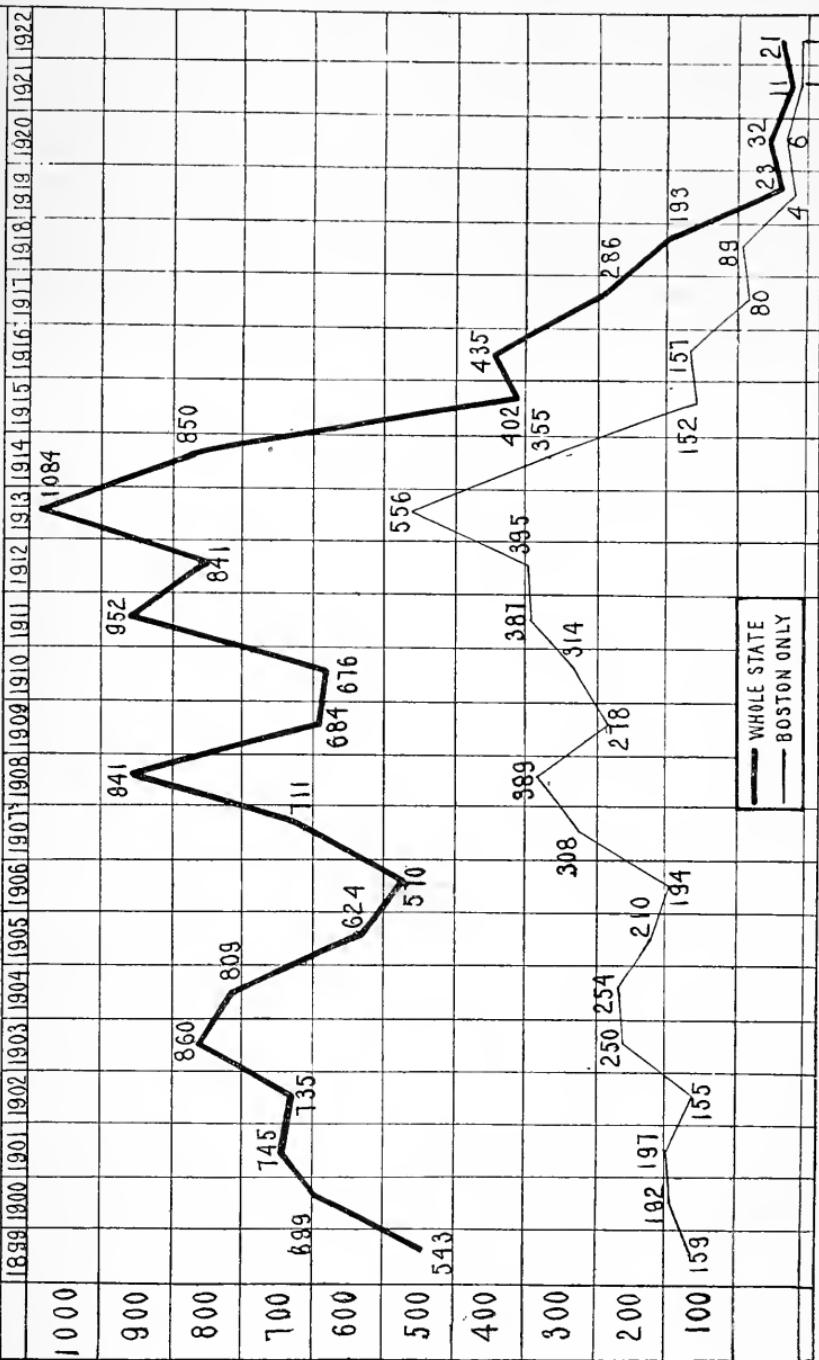
PRINCIPAL CONTAGIOUS DISEASES OF ANIMALS

FOR A PERIOD OF SEVERAL YEARS

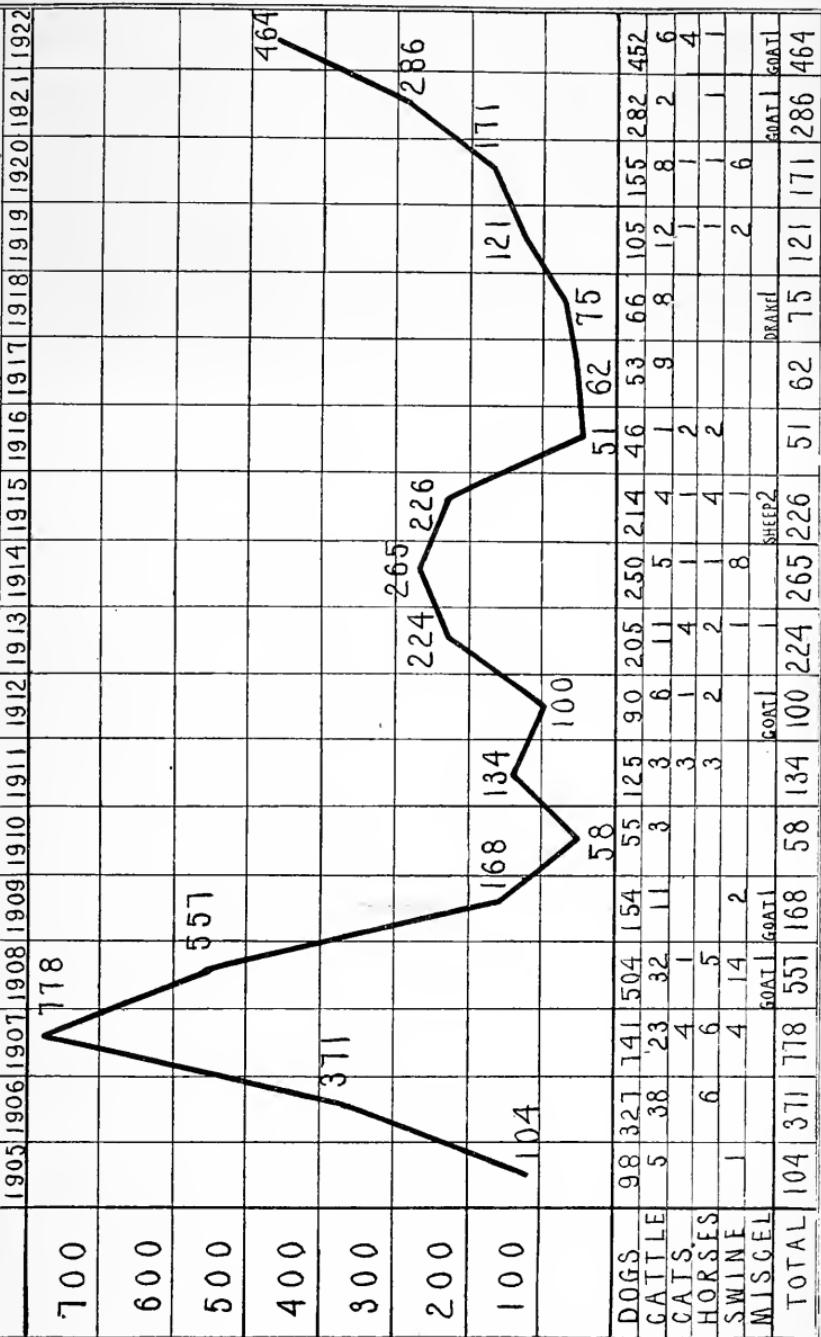
BOVINE TUBERCULOSIS



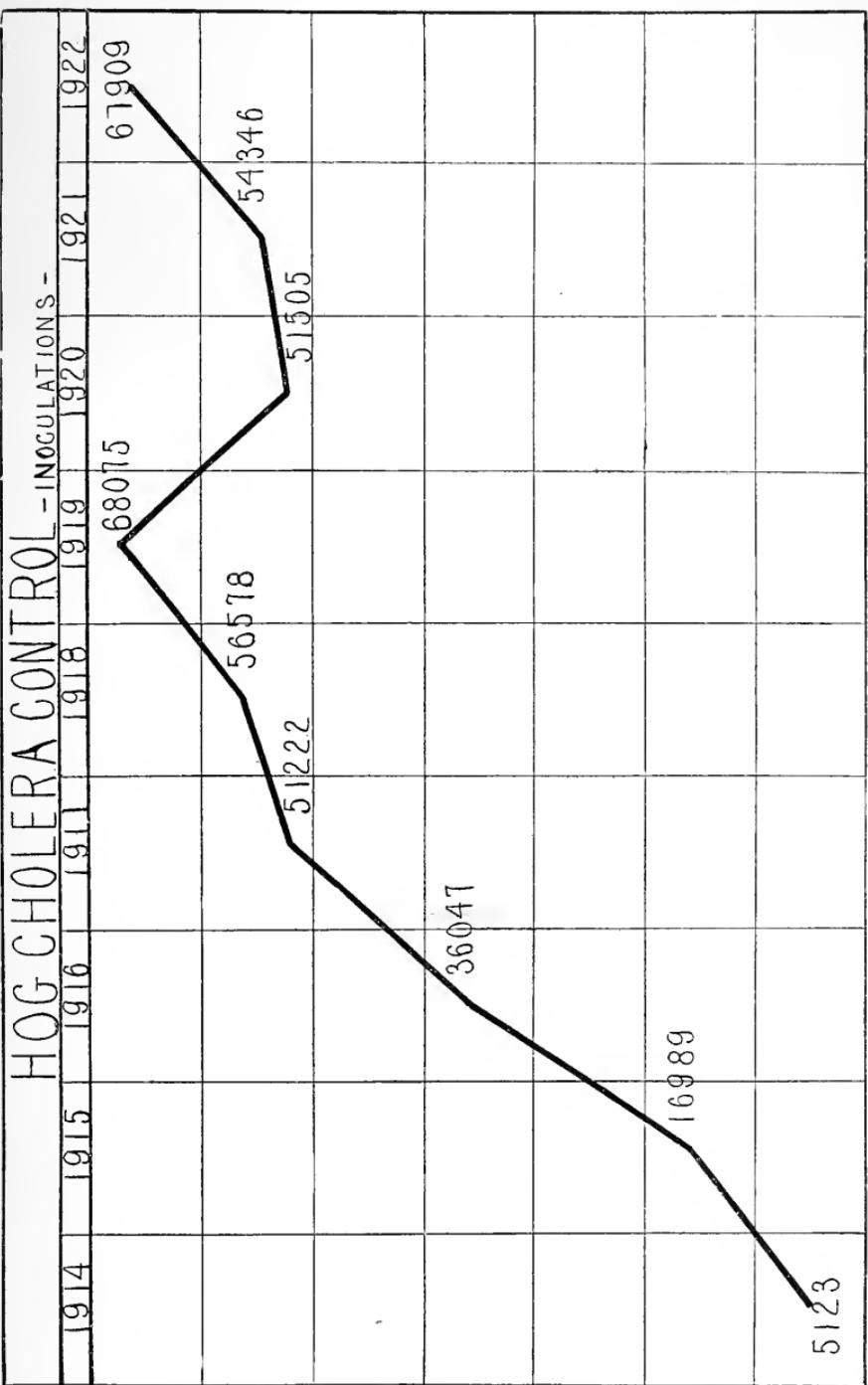
GLANDERS



RABIES



DOGS	98	327	141	504	154	55	125	90	205	250	214	46	53	66	105	155	282	452	
CATTLE	5	38	23	32	11	3	3	6	11	5	4	1	9	8	12	8	2	6	
CATS					4	1		3	1	4	1	1	2	1	1	1	1	4	
HORSES					6	6	5	3	2	2	1	4	2	1	1	1	1	1	
SWINE	1				4	14	2			1	8				2	6			
MISCELL.					GOAT	GOAT		GOAT				SHEEP	2						
TOTAL	104	371	778	551	168	58	134	100	224	265	226	51	62	75	121	171	286	464	



The Commonwealth of Massachusetts

ANNUAL REPORT

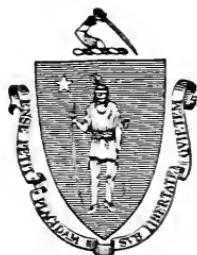
OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1923

DEPARTMENT OF CONSERVATION



MASS.
DOCS.
COLL.

The Commonwealth of Massachusetts

DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY,
BOSTON, Nov. 30, 1923.

To the Commissioner of Conservation.

I have the honor to present the following report of the work of this Division for the year ending Nov. 30, 1923.

The present year has been one of increased activities in the Division, partly owing to the rapidly developing interest of cattle owners in the eradication of bovine tuberculosis by use of the tuberculin test under the provisions of Chapter 353 of the Acts of 1922, which allows the payment of indemnity for reacting cattle.

The continued prevalence of rabies, with its attending dangers to human life, has also greatly added to the work of the Division by the necessary increase in regulatory measures of quarantine, and also by the increased laboratory examinations called for.

Contagious diseases of swine have claimed a larger part of our field activities than usual, as this branch of the service is one constantly calling for extended effort in prevention of hog cholera, hemorrhagic septicemia and various mixed infections attacking that species.

The regular continuous duties of inspection of horses, cattle, sheep and swine and of the sanitary conditions under which they are kept, execution of measures in prevention, cure or control of contagious diseases among all the several species of domestic animals, and the condemnation and slaughter when necessary of such as are affected with certain forms of such diseases, followed by supervision of the burial or other disposal of their carcasses, have been attended to promptly and in accordance with the methods found by many years' experience to be most effective.

The enforcement of regulations applying to the transportation of animals from other states to Massachusetts is another important duty of this Division, as by these methods we make sure that no prevalence of contagious disease shall be caused by the entry of infected animals. Mallein testing of horses from certain states in which glanders has extensively prevailed, and tuberculin testing of dairy or breeding cattle shipped from other states and not accompanied by satisfactory records of tuberculin test, are continuous activities calling for prompt determination of actual health conditions at time of entry. Although Federal regulations now require that all cattle of whatever age shipped from one state to another for any purpose except immediate slaughter shall have passed a tuberculin test applied by an approved veterinarian before the shipment takes place, and we ordinarily depend on this regulation being complied with by cattle shippers, yet we find that many cases of violation occur either intentionally or through ignorance of the existence of any regulatory measures of the United States government applying to this class of interstate commerce. In such instances official action becomes immediately necessary in protection of the live-stock interests of the state, and all animals involved are immediately inspected and tuberculin tested. Failure to pass inspection and test requires condemnation and killing, without indemnity to owner unless post-mortem examination discloses no evidence of disease.

The Division attempts first of all to prevent the outbreak of contagious disease, and as far as possible thereby to maintain our animals in a state of health. If such can be accomplished it operates to conserve in great measure that portion of the public food supply produced by our domestic animals and said to be more than one-third of its total. It also establishes its quality and nutritive value at a high standard.

The dairying industry depends for its business success on the production of large amounts of milk of standard quality, and for this production healthy animals are a first necessity. Neither propagation in sufficient numbers nor satis-

factory development to maturity or to the point where their products are available for human food can be expected in animals affected with any form of contagious disease.

The relation of animal disease to the public health has been previously mentioned but should be referred to in further detail. A diseased animal is sometimes found to be the source of the contagion of glanders, tuberculosis, rabies, anthrax, and other diseases appearing in the human subject. Such cases are fortunately of rare occurrence but their high mortality rate when attacking man calls attention to the vital importance of controlling these maladies at their most common source, and if possible eradicating them entirely from the animal kingdom.

Following is a gross summary of the work of the Division for the year ending Nov. 30, 1923: —

CATTLE.

13,768 Massachusetts cattle were physically examined by inspectors.

101 Massachusetts cattle were tuberculin tested by Division veterinarians at Brighton stockyards.

22,368 tuberculin tests of Massachusetts cattle were made by Federal and State veterinarians in co-operation.

2,712 interstate cattle were tuberculin tested by Division veterinarians.

8,700 tested interstate cattle were examined at Brighton and their test records viséed.

6,025 tested interstate cattle were inspected and identified at other points.

942 animals on 124 farms in 43 towns were given preventive treatment against blackleg.

21 animals were given preventive treatment against anthrax.

93 animals were given preventive treatment against hemorrhagic septicemia.

772 visits to unsanitary premises were made by district veterinarians.

HORSES.

302 tests for glanders were made by Division veterinarians.

3,391 interstate horses were examined by inspectors.

9 tests of whole stables were made by Division veterinarians.

5 horses were given preventive treatment against anthrax.

DOGS.

1,898 cases of possible rabies in dogs were investigated.

SWINE.

66,627 head of swine were treated in prevention or cure of hog cholera.

26,540 head of swine were treated in prevention or cure of hemorrhagic septicemia.

MISCELLANEOUS DISEASES.

256 cases of miscellaneous diseases were investigated by Division veterinarians.

BOVINE TUBERCULOSIS.

Our work in the control and eradication of this disease during the year has been carried on much as in former years but with the added efficiency made possible by the operation of the so-called tuberculin-testing law passed by the legislature of 1922 and effective on Aug. 1 of that year. The indications of real progress in the campaign against tuberculosis of the bovine animal are now very much more apparent than at any previous time in the history of this branch of State service.

For many years this eradication work had been practically limited to the disposal of physical cases of the disease,—animals so far advanced in the stages of tuberculosis as to be readily recognized by a physical examination alone, earlier diagnosis by the use of tuberculin being prohibited by law except in special instances of rare occurrence. By the time tuberculous animals have reached the stage of disease development where they become clinical cases they

have been active spreaders of the infection for a long time, and eradication work which is limited to the killing of such cases cannot be expected to be successful in any marked degree; during the development stage infection is being continuously planted in new centers and is developing faster than it can possibly be reduced by the killing of advanced cases only. For real progress in eradication earlier diagnosis is necessary, and the diseased animals must be slaughtered or isolated before reaching the point where they become sources of contagion to others.

For the purpose of early diagnosis the tuberculin test has been available for some years, during which it has been rapidly advanced to a satisfactory stage of perfection, and adapted to several different methods of application. It now comes to our aid through the agency of the new law referred to, and we believe that within a few years we will be able to show a very marked diminution in the prevalence of this great plague which has so devastated our herds and has caused such a great economic loss to cattle raisers, to milk producers, and to the many business interests allied to the live-stock industry.

In Massachusetts, as in all other States of the Union, the Federal government is co-operating in this work under the provisions of its "accredited tuberculosis-free herd plan" instituted in 1917 by its Bureau of Animal Industry. In the six years during which this plan has been in operation in different parts of the country in connection with local State activities, the combined service has progressed to a point where it is recognized as a public work of undoubted value. Its increasing popularity from year to year, as attested by the large number of herds voluntarily submitted for test under its regulations, and the published statistics of its practical workings both in individual herds and in defined areas such as towns or whole counties where all the cattle have been tested, would seem to indicate that this plan was well conceived, has been efficiently administered, and has accomplished wonderful results in the eradication of the disease.

While the work in Massachusetts has hardly been in operation long enough to show by actual figures its effect in the reduction of the prevalence of bovine tuberculosis, we have no reason to doubt that the satisfactory experience of other States where the work was started much earlier will be repeated here.

The official tuberculin test is applied only on request of the cattle owner, and only if he agrees to comply with the rules and regulations devised for proper administration of the law. The principal provisions of these rules and regulations refer to the disposal of animals which react to the test, the cleansing, disinfection and necessary repairs of the premises where they are found, and the determination of the health conditions of the cattle to be afterwards added to these herds under official supervision.

We find the requests for this service showing a steady increase in number from month to month as cattle owners become more thoroughly informed of the opportunity which it offers for elimination of diseased animals from their herds under conditions allowing fairly liberal reimbursement for them. We also find other potent factors influencing their decisions.

In many communities different civic or welfare organizations are now discussing the desirability of regulating by municipal authority the purity of their milk supply in this particular direction by prohibiting the sale of raw milk unless produced by animals which have passed a tuberculin test. Many milk producers foresee the probable establishment in the near future of regulations of this kind and decide it to be good business policy to be getting their herds into a condition where they can at once comply with the new requirements when instituted. At the end of the year, Nov. 30, 1923, we have 104 herds comprising 3,538 cattle which have been accredited by the Federal government as tuberculosis-free.

Animals in accredited tuberculosis-free herds command an increased price when offered for sale, and their market value is bound to still further advance as testing becomes more general and the demand for clean cattle becomes greater. Dairy products from herds which can be officially certified to as healthy are already in greater demand at advanced rates than the present supply can fulfill.

There are, therefore, many reasons for the rapidly increasing number of requests for our service under the new law, and we foresee that the end of the coming year will show very many herds added to our list as tuberculosism-free. New requests for this service are constantly being presented, and on Nov. 30 there were 81 on file, which will be complied with early in the new fiscal year.

Following is the year's record of tuberculin tests under the provisions of chapter 353, Acts of 1922:—

Total number of herds tested: 874.

Total number of cattle tested: 22,368 (purebreds 9,878, grades 12,490); passed the test, 19,162; reacted, 3,206; percentage of reactions: 14.3.

First test, 426 herds, 8,128 cattle; passed, 5,585; reacted, 2,543; percentage of reactions: 31.

Second test, 229 herds, 4,668 cattle; passed, 4,337; reacted, 331; percentage of reactions: 7.

Third test, 155 herds, 7,186 cattle; passed, 6,866; reacted, 320; percentage of reactions: 4.5.

Tests made of 64 herds comprising 2,386 cattle, previously accredited and due for retest, showed only 12 reactors, *i.e.*, one-half of 1 per cent.

In commenting on the above record attention is directed to the fact that although the percentage of reactors found — all records of tests being included — is 14.3, that figure does not correctly indicate the prevalence of the disease in Massachusetts, as the records on which it is computed comprise not only original first tests of herds but also the retests subsequently made in many of the same herds after the animals reacting to previous tests had been removed. A better basis, therefore, on which to estimate the percentage of tuberculous cattle in the State which the tuberculin test might disclose would be the results obtained on first tests only. The percentage so computed is 31, and undoubtedly more correctly indicates the true condition of our herds as regards tuberculosis, and at the same time emphasizes the magnitude of the work to be done in the future if ultimate eradication or more effective control of this disease is to be obtained under this plan.

A comparison between the number of reactors found in grade animals and those found in purebreds shows 18 per cent of the former and only 9 per cent of the latter. This may be accounted for largely by the fact that many purebred herds, on account of their high values, have been kept free from the disease by constant testing by private veterinarians over a period of years, while herds of grade animals of less money value have not been given similar attention.

As clearly showing what a continuous use of the tuberculin test may be expected to accomplish, a comparison of percentages of reactors found on first, second and third tests, showing a decrease from 31 per cent on first tests to 7 per cent on second tests and thence to 4.5 per cent on third tests, is at once convincing. There seems to be no doubt that continued work of this kind, efficiently and faithfully carried out, with due regard for all the necessary precautions against re-infection, will result in rapid progress toward elimination of the disease.

An "accredited" herd is one which has passed three semi-annual or two annual tests without a reacting animal having been found, and our record of the retests of such herds, showing that only one-half of 1 per cent reacted, indicates that continuous tuberculin testing with "accreditation" in view is well worth while from the standpoints both of the cattle owner and of the officials in charge of the control of this disease.

On Oct. 15, 1923, a regulation went into effect at the Brighton stockyards requiring that all cattle sold at those premises, unless for immediate slaughter, must have passed a tuberculin test. Formerly cattle arriving at those premises from Massachusetts farms were not tested and were sold without restriction.

The Brighton stockyards are an important distributing center for dairy cattle, and it would seem a very necessary control measure that the animals there sold to go to the farms in different parts of the State should be tuberculosism-free. We confidently expect that the effect of this new regulation will be noticeable

in the near future, and, what is quite important to the cattle trade itself, that a long existing criticism of the cattle business as carried on at this point will cease.

From Oct. 15 to Nov. 30, 1923, the period during which cattle from Massachusetts farms have been tested at this market, 459 animals have been received, 101 of which were tested on arrival, and 358, which were accompanied by satisfactory certificates of recent test made by approved veterinarians, were released for sale without restriction.

Of the 101 animals held for examination, 6 were released for slaughter and not tested, 1 was returned to owner because not in condition to test, 67 were tested and passed, and 27 reacted and were either slaughtered or returned to owners' premises, each animal so returned bearing a reactor tag for identification. These returned reactors were only 7 in number, the remaining ones being slaughtered. The percentage of diseased animals disclosed by the test at these premises (27) proves the value of this regulation, and points to its probable efficacy as a means of limiting in a measure the spread of bovine tuberculosis from farm to farm within the State.

Recommendations for New Legislation.

1. A condition which now threatens to offset in a large measure the progress being made in the eradication of bovine tuberculosis under the provisions of chapter 353 of the Acts of 1922, approved May 2, 1922, and known as the tuberculin-testing law, is the operation of section 4 of that Act, which provided that on and after August 1, 1923, section 12 of chapter 129, as amended by section 2 of chapter 353, should be repealed.

Said section 12 of chapter 129, General Laws, is the statute under which, until its repeal (Aug. 1, 1923), the Commonwealth paid for cattle condemned and killed because affected with tuberculosis, and the operation of which resulted in the slaughter of many badly diseased animals so far advanced in the stages of tuberculosis as to be readily recognized by their owners and by local inspectors. They then became subjects for immediate quarantine, which was followed by their condemnation and killing under orders of the Director of Animal Industry.

An owner of such an animal would always report its condition to his local town inspector or direct to the Division of Animal Industry, knowing that official condemnation and killing meant the payment of a certain amount of money as a partial reimbursement for his loss. As soon, however, as State indemnity was withdrawn by the repeal of this section of law, the attitude of the owners of this class of animals immediately changed. They now, in many instances, fail to report them, as nothing is to be received from the State as reimbursement, and the disagreeable publicity of quarantine is avoided.

What now happens in such instances is that a badly diseased tuberculous cow is kept milking as long as possible, and in the meantime she is rapidly spreading the disease to other cattle, not to mention the possibility of its spread to the human subject. The final disposal of such an animal is death from the disease, slaughter by the owner, or sale at whatever price she will bring in the market. In the latter case there is the extension of a center of infection to another location, other cattle are exposed, and possibly other human lives jeopardized.

Before the law referred to was repealed these animals, as stated, were reported, then quarantined, killed and paid for; further, members of the same herd were examined for additional cases, and the premises were cleaned and disinfected. These measures undoubtedly limited to a large degree the spread and prevalence of the disease, were measures of sound economy, and immeasurably effective in protection of the public health.

Upon *repeal* of the law providing for reimbursement for this class of cases, we found their number reported to official authority immediately dropping 75 per cent. This means that a large per cent of the badly diseased tuberculous cows in the State are continuing to live and spread the infection. In my opinion it would be far better for the Commonwealth to pay something for these creatures, and have them condemned and killed. This would be of itself a measure of true economy and would certainly be greatly in aid of the present movement to eradicate tuberculosis by use of the tuberculin test.

The Commonwealth is now spending large amounts of money to eradicate the disease by scientific methods, and to allow active spreaders of the disease to exist because of no practicable law by which to exterminate them would seem to be a paradoxical condition which should be remedied.

I therefore recommend the enactment of legislation whereby the present condition, brought about by the repeal of section 12, chapter 129, General Laws, may be eliminated.

2. A condition operating directly against the eradication of bovine tuberculosis by use of the tuberculin test, in accordance with the provisions of chapter 353, Acts of 1922, is the indiscriminate sale of animals which have reacted to such test.

Chapter 137 of the Acts of 1922 places certain restrictions on the sale of this class of animals, but does not absolutely prohibit it. Consequently there is more or less traffic in them, resulting in spread of the disease from one farm to another.

In my opinion the owner of an animal which has reacted to a tuberculin test should not be allowed to sell the same except for purposes of immediate slaughter. If he desires to retain such an animal in his own herd he alone should assume the responsibility, be the consequences what they may, but the public should be protected against the consequences of this traffic in diseased animals.

It is my opinion that the expenditure of money by the Commonwealth to eradicate bovine tuberculosis is rendered more or less futile if the disease is allowed to be carried from one farm to another by the sale of animals known to be affected therewith.

I therefore recommend that said chapter 137, Acts of 1922, recorded as section 33 A of chapter 129 of the General Laws, be so amended as to prohibit the sale of reacting cattle except for immediate slaughter.

Interstate Cattle.

Federal regulations applying to the shipment of dairy or breeding cattle from one State to another now require that all animals of that class of whatever age shall have passed a recent tuberculin test before the shipment takes place, an exception to this regulation being that animals from "accredited tuberculosis-free" herds may be shipped interstate without test.

These Federal regulations relieve us to a large extent of the former necessity of applying the tuberculin test to the majority of cattle arriving within the State, and consequently this branch of our work has been very much diminished since this Federal regulation became operative.

Another modification of the Federal regulations is that untested cattle may be shipped interstate if consigned to "public stockyards," under which designation the Brighton stockyards are now classified. Dairy or breeding cattle must be tested on arrival at Brighton unless accompanied by satisfactory certificates showing they have passed a recent test applied by a veterinarian whose work is approved by the live-stock official of the State where the shipment originates. Check tests are made from time to time on these certified animals to make sure that the efficiency of the testing is up to the proper standard and that dishonesty or misrepresentation has not been practiced.

Receiving stations for cattle consigned to the Brighton market are maintained at Watertown and Somerville and are under the same quarantine restrictions as the main yards at Brighton.

During the year 11,140 interstate dairy cattle have been received at Brighton, either shipped thereto direct or through the other receiving stations mentioned. Of these, 4,234 were from New Hampshire, 4,110 from Maine, 2,680 from Vermont, 108 from New York, and 8 from Connecticut. Of the total number received, 8,700 were released for sale on approved records of tuberculin test, and 2,440 were held for test by State and Federal officials, the reactors being slaughtered.

At other points in the State there have been received 6,302 dairy or breeding cattle from other States, all tuberculin tested either before shipment or immedi-

ately after arrival in cases where interstate regulations have not been complied with through ignorance or wilful intent.

The total number of dairy or breeding cattle received from other States at all points in Massachusetts shows a grand total of 17,442, approximately the same number as in 1922, an increase, however, of 175 animals.

CONTAGIOUS DISEASES OF SWINE.

Hog Cholera is the principal disease of swine that is contagious and the one which originally directed the attention of live-stock officials to the importance of applying measures of control to diseases affecting that species. Ten years ago when the campaign against this disease was first started in Massachusetts, it was prevailing so extensively that many whole herds were being wiped out of existence, or the deaths were so many that swine production as an industry was rapidly being abandoned on account of the financial losses sustained. A large proportion of swine raisers, who had previously been successful in the production of pork for the market by the utilization of garbage for feeding the animals, were being forced to abandon this cheap material for other of much higher cost, or go out of the business. All the elements necessary to perfect nutrition and rapid growth of swine are to be found in ordinary household garbage, and the feeding of this material, which in many communities had been entirely wasted, originally promised to become not only a great community economy but also the foundation of a successful business. The venture, however, was proving disastrous on account of garbage frequently being the carrier of disease by scraps of tissue originally coming from swine slaughtered and sold after being affected with hog cholera, and not until the development of a treatment by which swine could be immunized against this infection could they be safely raised to marketable age in sufficiently large numbers to be profitable.

When this Division undertook a campaign against the prevalence of hog cholera, immunization had already been successfully developed by the United States Bureau of Animal Industry and has since been progressively improved to the point where it is now generally recognized as a safe, effective and inexpensive treatment, sure to prevent the disease if properly administered before infection takes place. We have therefore always urged all swine owners to have their herds protected by applying early to this Division for this service, which is rendered free of charge, the owner having to pay only for the materials used.

As in many other ways where people are unmindful or careless of their own best interests, swine owners often delay their requests for service until too late for complete protection against disaster, as we can only partially avert their losses if hog cholera has already broken out on their premises. However, even in such cases we are generally able to minimize losses to a degree well worth while, but always regret financial losses that were really preventable.

The prevention of contagious disease in swine is a conservation work of really great economic value, and our service in this direction is second in importance only to our control and eradication of contagious diseases of cattle. While hog cholera is the most disastrous of swine diseases, others are now commanding increased attention each succeeding year as their importance to the successful outcome of swine raising as a business industry is more generally recognized. Further on in this report, for instance, it will be shown that we have administered this year more than three times as many treatments in the cure or prevention of swine plague (hemorrhagic septicemia) as during last year.

Starting hog cholera prevention work in 1914 under plans well considered and comprising restrictions against the indiscriminate use of biologics which were valuable if used carefully and with good judgment, but dangerous if used without discrimination, we have found no reason to change our policies or regulatory orders in this branch of the service.

There have been 66,627 treatments in prevention and cure of hog cholera administered this year to swine in 625 herds, these herds varying in size from those consisting of one pig only to some exceeding four thousand in number. The herds were located in 171 cities and towns and necessitated 1,508 visits by one or more field veterinarians.

In addition there were 77 visits made to places where no treatment was applied, either because the swine were so badly infected as to preclude all chance of recovery, or because, as in some instances, the trouble was of a non-contagious nature not calling for State service. In other instances sanitary conditions necessary to successful treatment could not be established.

Attention is directed to a graph in the appendix to this report showing the number of treatments in control of hog cholera over the period of years from the inception of this work to the present time.

Hemorrhagic Septicemia in Swine.—This disease, otherwise known as "swine plague," has prevailed to a greatly increased extent this year, our records showing that treatment has been applied by our field veterinarians to three times as many animals as during the year 1922.

Symptomatically it very much resembles hog cholera in many outbreaks, and a differential diagnosis in the field is often difficult even by well trained veterinarians of extensive experience. Frequently these infections are found coexistent and it is impossible to determine which of them is the primary invader, and in such cases treatment must be directed against both diseases.

Similar conditions have been reported from many other States during the present year, and a factor which may have influenced the number of reported instances is the rapid development of more acute observation on the part of those who have made careful study of field conditions and have based their diagnoses on such observation and study.

Various biological preparations designed for the prevention or cure of hemorrhagic septicemia in swine are now available and are being used successfully. Private veterinarians are not restricted from the use of these materials and in some sections of the State many swine are treated by them. However, as a swine owner generally considers any outbreak of disease to be hog cholera and applies to this Division for service, it happens that the great majority of cases of hemorrhagic septicemia are referred to us, designated as hog cholera; the animals involved therefore come under our supervision and proper service in the emergency is rendered.

During the year 26,540 treatments have been administered for the prevention or cure of hemorrhagic septicemia in swine. This number represents three times the service of this kind rendered in 1922, and as we are still busily engaged in this work at the end of the year the prospect for 1924 is that we shall be called upon for a service still further increased.

RABIES.

Among specific infectious diseases rabies is one of the more important, especially because of its high mortality, its constant prevalence in practically all civilized countries, and the difficulty in its extermination when once it has become firmly established. Although primarily a disease of animals and mostly prevalent among dogs, which species is the principal factor in its spread, nearly all mammals are susceptible to the infection and under certain circumstances of communicability may become its victims. Because of these facts the danger to people during any unusual prevalence of the disease among dogs must be recognized, and the circumstances surrounding local outbreaks given careful attention.

Until this year the general prevalence in Massachusetts has shown a gradual yearly increase since 1918, progressively spreading from one community to another, in some instances disappearing from one section only to be found cropping out in another, so that the total number of cases recorded in the State as a whole has still remained high. We have reason to hope, however, that it has now arrived at the peak of its prevalence, as the number of positive cases recorded this year is practically the same as in 1922, and we confidently expect a recession to be shown in the coming year. Many diseases of this character seem to follow a cycle of incidence, and the fact of no increase of positive cases of rabies occurring this year leads us to expect that the high point in its cycle has been reached and a recession is due in the near future.

Its control in any one community can generally be accomplished fairly promptly if we can get all agencies co-operating to this end. Among these agencies strict enforcement of the dog license laws is of great importance. Unfortunately, however, these laws seem to be practically ignored in many towns and cities or are only spasmodically enforced. Many dogs, especially those of low grade and value, would be destroyed if any one was obliged to pay for a license to keep them, and, as animals of this class are very potent factors in the spread of rabies, the lax enforcement of the dog license laws is an unfortunate condition, especially in communities where an outbreak of rabies has occurred and control measures of every kind are necessary to its suppression.

Selectmen, mayors and boards of aldermen have the authority to issue orders calling for the muzzling or restraining of the dogs in their municipalities whenever the same seems to be necessary. In the excitement attending a fresh outbreak of this disease, when public opinion is acutely alive to the dangers of the situation, such orders are deemed necessary and are at first generally well observed by the dog owners and well enforced by the police authorities. As soon, however, as the first excitement has subsided, we find that in many instances there is no observance of them by the public, no enforcement by the authorities, and conditions relax to the same level of non-attention as in case of the State laws regarding the licensing of dogs. Effective control of rabies in any community is not to be gained in a short time, and how to offset the perplexing conditions of non-observance and non-enforcement of State laws and local regulations is yet a problem.

There is some promise of relief of the rabies situation in the recent development of a practicable method of treatment for the prevention of this disease by immunization of susceptible animals. This method has now been brought to a point where in many cases animals may be protected against rabies by a single injection of a properly prepared canine rabies vaccine. A general use of this treatment on dogs licensed according to law, and the impounding or humane destruction of all ownerless or unlicensed dogs, would undoubtedly immediately reduce the prevalence of rabies to a negligible point. There would arise many difficulties in the carrying out of such a plan by official authority, but the fact that it is possible to protect animals which for any reason are valued by their owners is being taken advantage of, and is of some relief to the general situation. Dogs which have been exposed to rabies are ordinarily quarantined for a period of 90 days, but if owners have them immunized this Division will now release them from quarantine at the end of 21 days following treatment if no symptoms of rabies have appeared.

During the year ending Nov. 30, 1923, 2,017 animals were reported to the Division for diagnosis, observation or quarantine on account of the prevalence of rabies, and 53 reported cases were brought forward from the year 1922. Of these 2,070 animals, 455 dogs, 3 cattle, 3 cats, 3 pigs and 1 horse proved to be positive cases of rabies. Diagnoses were arrived at either by clinical symptoms, or laboratory examination of brains and the inoculation of small animals. These records show just one more positive case than the previous year.

The Division received reports during the year of 1,032 persons who had been bitten by dogs, 13 persons who were bitten by cats, and 1 by a horse.

In all cases reported of persons bitten by dogs, the local inspector of animals of the town or city where the animal is owned or kept is ordered to make an examination of the animal, and, even if it appears to be healthy, to have it quarantined for a period of 14 days for observation. This is a measure directly in protection of the public health. If by any chance the biting dog is affected with rabies at the time the bite is inflicted, unmistakable clinical symptoms of the disease will probably appear before the end of the quarantine period, and in such cases the bitten persons will have definite knowledge of that fact and will seek medical advice. If at the end of the 14-day period dogs which are quarantined on account of biting persons have not developed symptoms of rabies, they are released from quarantine.

The majority of the animals which inflicted bites on 1,046 persons as above

recorded were released at the end of the quarantine period showing no symptoms of rabies.

Of the 2,070 animals reported for observation, 93 dogs and 3 cats were, as far as could be ascertained, ownerless and the dogs unlicensed, and 44 of these ownerless dogs proved to be positive cases of rabies.

GLANDERS.

Attention is directed to a graph in the appendix of this report showing the history of glanders prevalence in this State for a period of twenty years.

It will be seen that while at some periods the number of cases indicated a very serious situation, notably in year 1913 when 1,084 horses were destroyed because affected, the following five years' record of cases showed a rapid decline to a point where the situation could be said to be a satisfactory one, and from that period to the present time — 1919 to 1923, inclusive — the situation has remained practically the same.

The use of modern methods of diagnosing the disease, including the mallein testing of all exposed animals, such as the stable and working mates of positive cases, may be given the greater part of credit for the present satisfactory aspect of the situation. Another factor to be recognized also is the lowering number of horses in commercial use and their better working conditions, which operate to lessen their susceptibility to disease of any kind. The horse's work-day has been shortened and he has been largely relieved by the motor truck of the heartbreaking long hauls of heavy loads which formerly were his task. The effort of various organizations having his welfare as their principal object has done much to educate his caretaker to an understanding of his needs and to a realization of his greater usefulness if well fed, comfortably stabled and properly cared for. All of these are influences of value in the control and eradication of disease of any kind in any species of live stock.

The horse is still a necessity in many lines of commercial trade, and on the average New England farm he is still the economic power. He and his near relative, the mule, are indispensable in military operations, and as a means of healthful recreation and pleasure the horse is in much greater demand than at any time for many years. Note his continuing importance as a drawing card at all animal expositions where the different types, draft, coach, saddle or speed, still receive genuine attention of interest.

Another and one of the most important uses of the horse to-day and in which he is well-nigh indispensable is in the manufacture of various biological preparations now used for the prevention or cure of many diseases of the human subject. Modern preventive medicine is rapidly increasing its use of these preparations, and this materially increases the demand for healthy horses for their manufacture.

Horses must therefore still be produced in considerable numbers and maintained free from contagious disease.

There were 53 horses reported during the year as suspected of glanders, of which number 13 proved to be positive cases of the disease. Horses in any way associated with these positive cases and classified as "contacts" — 79 in number — were mallein tested, 6 positive cases being found, making a total number of 19 positive cases for the year.

Of these 19 cases, 4 were condemned on clinical examination, and diagnoses in the remaining 15 cases were arrived at either by use of the ophthalmic mallein test or by laboratory examination of blood samples submitted to the complement-fixation test.

Of the reported cases 3 died or were killed by owners, and 110 of the total of reported and contact cases were released from observation as not diseased.

The 19 positive cases were located in 10 different cities and towns. Boston, which was formerly the storm center of the disease, has had only one case a year for the past three years. One other city and one town have each had 4 cases this year, one city and two towns have each had 2 cases, and two cities and two towns have each had one.

The laboratory work in this branch of the service is quite necessary and very important, and this year has consisted of the complement-fixation test of 140 samples of blood taken from 119 horses, for the purpose of diagnosis.

Ophthalmic mallein tests to the number of 82 have been applied to 66 horses owned in the State permanently, and 80 tests to 80 horses recently arrived from other States, a total of 162 tests to 146 animals. The results of these tests were 10 positive, 152 negative.

Under present regulations (Department Order No. 36) horses shipped to Massachusetts from New York, New Jersey, Rhode Island and Connecticut must be accompanied by a permit of the Director of Animal Industry. From these States there has been reported the arrival of 3,471 horses. They have been mallein tested on arrival unless accompanied by an approved record of test, or shown to be horses of the better class which ordinarily do not become exposed to the disease.

It is to be noted that no interstate horses have been found this year to be affected with glanders. Many of the animals from these States are of the better class referred to, used for carriage work, breeding, racing or exhibition purposes, and many of them are brought to the State for the summer season only. These of the better class do not require special attention on our part, but second-hand horses, trafficked in and sent from the markets of one State to those of another for public sale, have been specially watched on account of their being considered more liable to be subjects of contagious disease.

MISCELLANEOUS DISEASES.

Anthrax.—We are singularly fortunate in our freedom from outbreaks of this disease the past year. While during recent years the incidence of anthrax has been steadily declining and has this year reached the lowest point in its history as recorded, we are not unmindful of the terrible damage it sometimes occasions in a very short time following an outbreak, and often before local control measures can be set in motion. Its onset is so rapid and its mortality rate so high that many deaths of live stock are liable to occur even before centralized control authorities are notified of its outbreak.

An animal found dead in pasture from no recognized cause is generally the first incident to which attention is called, if any notice whatever has been thought necessary, and before the true nature of the trouble is determined and the danger is recognized, it sometimes happens that many other animals have been exposed to the disease and a certain number have become infected and later succumb. If such occurs and carcasses are not promptly buried, the infection may be carried in numberless ways to surrounding territory and a more or less general prevalence of the disease be started.

The bacillus of anthrax and its spore formations are very resistant to the conditions which ordinarily destroy germ life, and will remain potent for a long time—often for many years—living in the soil and ready to infect any susceptible animal which may come in close contact with them. It therefore happens that places where it has existed at any time may remain infected and subsequent outbreaks may occur even after the lapse of years. Consequently, following a positive diagnosis of anthrax it becomes necessary to at once put in operation preventive measures against its future occurrence.

Deep burial or burning of infected carcasses and material with which they have been in contact, disinfection of buildings, the burning over of surface ground where carcasses are buried or over which they may have been dragged, the protective inoculation of all exposed animals and those which afterwards are to be stabled or pastured on the same premises, and a thorough investigation as to possible sources of the original outbreak are the control measures which have generally been found to be effective, and to which our present favorable situation is undoubtedly due.

On several farms which have been previously infected we take the precaution to annually treat all susceptible animals with antianthrax serum and spore vaccine. An occasional death from the treatment occurs, but very infrequently, and

the majority of the animals are given absolute protection against the infection.

We have one horse barn in the central part of the State which has remained infected with anthrax for several years, in spite of as thorough application of disinfectants as can be devised. This building is therefore permanently quarantined and no animals are allowed to occupy it except those previously immunized against the disease.

The communicability of anthrax to the human subject is well recognized, more or less danger existing to those whose occupations require the handling of hides and wool which may have been taken from infected carcasses of cattle or sheep. The Division's work in control of this disease has therefore a public health relation of considerable importance.

Our records for the year show no positive cases of anthrax. Although 1 horse and 3 cattle were reported as affected, laboratory examination of specimens gave a negative result. Preventive treatment was applied to 21 cattle and 5 horses.

Blackleg.—This disease, otherwise designated as "symptomatic anthrax," is one to which much that has been said in our reference to that disease will apply, especially its sudden development, high mortality rate, resistant powers of its causative organisms, and the precautions necessary to prevent its spread. It generally develops, however, only during the pasture season and affects only the young cattle. It is unusual to find a case in an animal over two and one-half or three years of age, adult animals for some reason not being susceptible except in very rare instances.

Preventive treatment is also available and is completely successful in nearly all cases if applied before infection has taken place. This protection is considered to be effective for a period of one year at least. We have many farms in the State where blackleg has existed at one time or another, and we recommend that all the young cattle on these places be given the protective treatment, the best time for it being just before the cattle are turned out to pasture in the Spring. This service is furnished free and we find it quite generally availed of, especially in those sections where the disease has at any time prevailed.

On the occurrence of an outbreak we advise as a precaution the immediate removal of all susceptible animals from the pasture in which the disease has developed, and their treatment in prevention of the disease.

During the year 942 animals have been given protective treatment on 124 farms located in 43 different towns. Twelve deaths have been reported in untreated animals on farms located in 5 different towns.

The same general recommendations as in anthrax outbreaks, as to disposal of infected carcasses by burning or deep burial, are applicable following occurrence of this disease.

Actinomycosis.—A few cases of this disease are recorded every year and are generally disposed of by slaughter without reimbursement to the owner. If a case is not serious we allow the owner to have it treated by a private veterinarian and in some cases allow the animal to be held for fattening purposes under quarantine restrictions, to be released only for slaughter.

There have been 12 cases reported this year, one each in ten different towns and two in one town. Of these, 8 have been slaughtered, 1 has recovered and been released from quarantine, 1 proved to be a case of another disease, and 2 are undergoing treatment under quarantine restrictions.

Hemorrhagic Septicemia in Cattle.—This disease, of very great importance in some sections of the country, where large numbers of cattle are received through public stockyards, does not often occur in this State in the form which is reported from those sections. Our cases are of the acute, purely septicemic type, developing very rapidly and causing sudden death. At its onset it resembles anthrax in many of its symptoms and some cases are reported as that disease, the diagnosis of hemorrhagic septicemia being arrived at only by laboratory examination of material taken from the carcasses.

Ordinarily the spread of the disease can be prevented if we have early report of its outbreak, by immediate removal of contact animals to other premises and

their treatment by preventive methods. The losses are generally confined to the animals first affected, deaths occurring so suddenly that diagnosis is not made, and treatment cannot be applied early enough to save them. Our efforts are therefore in many instances effective only in saving the other members of the herd which may have been exposed to the same infection.

Our records show that outbreaks of this disease have occurred in eight towns this year, in which 17 deaths occurred. Preventive treatment was applied to 93 head of cattle.

A flock of 13 sheep in a suburb of Boston was reported as showing symptoms of contagious disease, and hemorrhagic septicemia was diagnosed by a Division veterinarian. Prompt treatment saved all the animals and stopped the spread of the disease.

Although the function of this Division is the control and eradication of such diseases of animals as are contagious or infectious, we naturally have many other disease conditions referred to us which are not in that category. Among such, and regarding which we have given advice to live-stock owners whenever requested, may be mentioned the following: — tuberculosis in a dog; poisoning of cattle by eating of fodder which had been sprayed with an arsenic mixture; foot rot; malignant tumors; tuberculosis in sheep, diagnosis negative; parturient paresis; an outbreak of disease causing death of seven young cattle at a State institution, no diagnosis made but contagion eliminated.

Infestation by parasites whose sphere of activity or cycle of existence in whole or in part may be in intimate relation to the animal body, externally or internally, is a condition often seriously interfering with normal health. As such a condition may be said to be a communicable one where certain kinds of these organisms are the ones involved, the Division is frequently called upon for advice as to the best methods of extermination.

The prevalence of scabies or "mange" affecting horses, cattle or sheep is at times widespread and when brought to our attention demands quarantine measures. Much less prevalent than formerly, we have had a relatively small number of cases to contend with. Thorough application of remedies according to directions furnished generally results in destruction of the parasites within a reasonable period and the infested animals are then released from quarantine. Unfortunately many cattle owners are not disposed to carry out the necessary treatment or to take proper precautions against a spread of the infestation from one animal to another, and in that way they lose much of the normal producing power of their animals. There have been 214 cases of mange in cattle reported this year on 15 premises in 10 towns, and only 3 infested horses.

The treatment of conditions due to internal parasites was never before given the attention by progressive live-stock raisers which it now commands, and much valuable information of a scientific character is now being taken advantage of by veterinarians and live-stock owners. Wonderful results are being obtained in the way of better growth of young animals and increased production by the mature ones, and larger revenue in consequence.

An instance showing the great loss which may be occasioned by delay in investigation of causes of malnutrition is one where we were called in for advice and found that 132 sheep had died because infested with stomach worms. The owner was advised to slaughter the remainder of the flock and take precautions against such a condition again occurring.

Nodular disease, a parasitic infestation of the intestinal tract quite common in sheep, has not been reported this year, but it probably prevails more or less extensively, being often found at the abattoirs at time of slaughter.

Foot-and-Mouth Disease. — For another year we have been fortunate in not experiencing an outbreak of this disease, although at no other period has this country been in such great danger of an invasion. Great Britain, since the World War, has had the largest number of outbreaks in her history, and has been spending millions of dollars for its extermination. It has also prevailed in many European and Asiatic countries, and in parts of South America with which the United States has intimate trade relations. The contagion is thought to be

very readily transmitted from place to place, and our freedom from an invasion of it is really remarkable. Live-stock officials of the Nation and the several States are very much alive to the impending danger and are ready to take immediate steps to control the disease on the first report of its appearance.

Bovine Infectious Abortion. — This disease is a specific infection existing in practically every section of the country, and for many years has been the cause of much anxiety on the part of cattle owners and live-stock officials on account of the great losses in breeding efficiency and a consequent diminution in the amount of dairy products which animals may be expected to yield under normal conditions of health.

For many years its cause, means of dissemination, and possible methods of control have been subjects of study by the most eminent scientific investigators in veterinary medicine, and while as yet there is not entire agreement on many phases of the subject, yet the wide discussions of it have brought forth the great importance of many correlating pathological conditions formerly ignored and not considered to be related to the phenomenon of premature birth or to that of true abortion.

The problem of control does not seem at present to be one for the application of regulatory methods by live-stock officials. It is rather to be solved in individual herds by private veterinarians who, in addition to well known hygienic measures of value, have at hand the evidence of many as to the practicability of immunization of animals by the use of biological preparations.

One State (Georgia) is making the experiment of prohibiting the shipment to that State of animals affected with abortion disease. The difficulties attending the enforcement of regulations to accomplish control must be many, if all interests are to be considered with fairness. The result of Georgia's departure in a new direction for the protection of its cattle interests by interstate regulation will be awaited with much interest by this Division.

We render service in the way of obtaining laboratory diagnosis as to the presence of the *bacillus abortus* in animals. There have been received this year 63 samples of blood for this diagnosis. They were taken from animals on 11 different farms. Of these samples, 12 were diagnosed as positive, these 12 coming from 6 different farms.

Other Infectious Diseases. — The finding of tuberculosis in swine at time of slaughter often means the presence of that disease in cattle on the same premises. Inspectors of slaughtering occasionally bring to our attention cases of swine tuberculosis, and we immediately examine all members of the herd of cattle for evidence of the disease. Only four cases have been reported this year from four different towns, but in our opinion many inspectors neglect their duty in this direction.

Among rare cases of infectious disease reported are one of tuberculosis in a dog, and one of Johne's disease in a cow.

LABORATORY SERVICE.

A very important auxiliary to the work of this Division is the laboratory service rendered by the bacteriological laboratory of the Department of Public Health.

We have many instances occur in which positive conclusions as to identity of disease can only be established by laboratory diagnosis, and in many other instances we desire confirmation, by laboratory examination, of clinical diagnosis made in the field. This service is therefore invaluable, and in many directions well nigh indispensable.

In the control of rabies in many instances we could not proceed properly without the information to be gained only by the laboratory examination of the brains of animals suspected of the disease or of having been exposed to it. This information is of very vital importance from a public health protection point of view, when it happens that persons have been bitten by the suspected or exposed animals.

During the year the brains of 417 animals have been examined for diagnosis

as to the presence of rabies infection. This number is a reduction from last year of 66 examinations.

In the control of glanders the laboratory examination of samples of blood taken from horses suspected of or exposed to this disease is found necessary. Complement-fixation tests of 140 blood samples have been made this year.

In addition to the above, 20 specimens have been examined taken from animals suspected of the following diseases: anthrax, 3; blackleg, 1; glanders, 3; hemorrhagic septicemia, 9; tuberculosis, 2; Johne's disease, 1.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES.

Under the provisions of section 19, chapter 129 of the General Laws, an order was issued by the Director on Jan. 10, 1923, to every inspector of animals in the cities and towns of the Commonwealth calling for an inspection of all cattle, sheep and swine and of the premises where kept.

This order called for the completion of the inspection by March 1, and for a report of the same to be promptly forwarded to the Division's office. The inspectors' reports came forward in most instances in good season and were duly examined and tabulated in minute detail.

These reports first of all constitute a "census" of the cattle, sheep and swine on the 31,000 farms or premises in the State where these species of animals are kept. From these reports the following interesting facts are gathered:—

The number of cattle of all kinds has decreased from the 1922 record of 237,186 to 232,090 in 1923, a difference of 5,096 head. This year's record is, however, still above that of 1921 by about 1,100 head, and approximately 5,300 head above the record of 1920.

The number of dairy cows we find to have reduced by 509 head from the number recorded in 1922. The number this year is, however, greater than in 1921 by 8,169 head, and exceeds that of 1920 by 13,954, the total for this year being 168,361.

As the records for fifty years show the average number of dairy cows in Massachusetts to have been approximately 160,000, it can be truthfully said that this class of food-producing animals are holding their own as far as numbers are concerned, but it must be admitted are unfortunately not keeping pace with the fast increasing population.

The number of swine has been steadily decreasing for the past five years. During the World War pork production was so stimulated that the number of swine raised in the State increased very rapidly, those recorded reaching a number of over 100,000. Due to a constantly lowering market in recent years the swine industry has rapidly declined and inspectors this year record only 62,766 found upon the farms visited, a reduction of 5,813 head from the previous year.

The number of sheep has also continued to decrease, only 11,633 being recorded this year, a number less by 1,909 than in 1922. This decline in the sheep industry has also been a gradual one, the number now on the farms having decreased 33 per cent since 1917.

Several factors have undoubtedly entered into the decline in the sheep and swine industries, one of which is the increasing prices of feed and another the lowering prices of marketed carcasses.

Referring to the service of local inspectors of animals in their annual examination of all cattle, sheep and swine, and the premises on which they are kept, it should be said that in the great majority of towns and cities the work has been thoroughly and faithfully attended to. It has happened that in a few towns the work has not been of a character to be commended and reports of the inspection have been very much delayed, no report being received this year from two towns. It will probably be necessary therefore for the Director to exercise the coming year his prerogative of disapproval of the renomination of such inspectors as have not rendered satisfactory service.

A capable inspector who performs his duty faithfully and promptly is a valuable asset to the live-stock industry of his community and is a public health auxiliary of no small importance. It happens in most of the smaller towns,

however, that his remuneration is not commensurate with the value of good service, and this condition in some communities lowers the high standard to which we would like to see this valuable work attain in every city and town.

Meetings of local town and city inspectors were held this year at Greenfield, Pittsfield, Springfield, Worcester, Falmouth and Boston. These meetings, called primarily for the purpose of discussing matters relating to the service in which the inspectors and officials of the Division are mutually interested, were this year thrown open to the public, and the eradication of bovine tuberculosis under the tuberculin testing law was made the principal subject for discussion. The attendance of inspectors was fairly good, but the number of cattle owners, or of the general public who came to the meetings, was disappointingly small.

District veterinarians have made 772 visits to premises where unsanitary conditions existed and which local inspectors had failed in having corrected. In the majority of instances the final result has been a satisfactory improvement.

REPORTS OF RENDERING COMPANIES.

Section 154 of chapter 111 of the General Laws requires rendering companies to report to this Division every animal received by them which is found to be infected with a contagious disease, and the information thus furnished is of value in bringing to the attention of the Division occasional cases of these diseases which otherwise would not be known.

Twenty-two reports covering 50 cases of contagious diseases were received from rendering companies, 4 of which had not been otherwise recorded.

FINANCIAL STATEMENT.

Appropriation for the salary of the Director, chapter 126, Acts of 1923	\$3,500 00
Expended during the year for the salary of the Director	\$3,500 00
Appropriation for personal services of clerks and stenographers, chapter 126, Acts of 1923	\$9,300 00
Expended during the year for the following purposes:—	
Personal services of clerks and stenographers	\$8,615 66
Extra clerical and stenographic service	33 75
<hr/>	
Total expenditure	\$8,649 41
Unexpended balance	650 59
<hr/>	
Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 126, Acts of 1923	\$6,200 00
Expended during the year for the following purposes:—	
Books and maps	\$107 99
Express and messenger service	209 66
Postage	555 49
Printing report	107 24
Other printing	714 27
Telephone and telegrams	699 97
Stationery and office supplies	1,149 36
Expenses of the Director	468 24
<hr/>	
Total expenditure	\$4,012 22
Unexpended balance	2,187 78
<hr/>	
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 126, Acts of 1923	\$48,000 00
Brought forward from 1922 appropriation	18 00
Total amount appropriated	<hr/> \$48,018 00

Expended during the year for the following purposes:—
 Services of regular agents \$31,187 58
 Services of per diem agents 6,332 00
 Labor hired 104 00

Total expenditure \$37,623 58
 Unexpended balance 10,394 42

\$48,018 00

Appropriation for the traveling expenses of veterinarians and agents, chapter 126, Acts of 1923 . \$23,000 00
 Brought forward from 1922 appropriation 4 50

Total amount appropriated \$23,004 50
 Expended during the year for the following purposes:—

Traveling expenses of regular agents \$16,064 52
 Traveling expenses of per diem agents 2,953 71

Total expenditure \$19,018 23
 Unexpended balance 3,986 27

\$23,004 50

Appropriation for reimbursement of owners of cattle and horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services, and for laboratory and veterinary supplies and equipment, chapter 126, Acts of 1923 \$32,000 00

Expended during the year for the following purposes:—

985 head of cattle condemned and killed on account of tuberculosis in 1916, 1918, 1920, 1921, 1922, 1923, paid for in 1923 \$25,608 50

18 horses condemned and killed on account of glanders 900 00

Supplies for veterinary inspectors 292 89

Laundry 357 05

Antiseptics, biologics and disinfectants 315 86

Thermometers, needles, syringes, etc. 498 81

Ear-tags, punches, chains, etc. 1,515 52

Expenses of killing and burial 218 83

Expenses of travel allowed inspectors of animals 454 58

Quarantine expenses 62 00

Rent of halls for inspectors' meetings 18 50

Sundries 48 00

Total expenditures \$30,290 54¹
 Unexpended balance 1,709 46

\$32,000 00

Appropriation for reimbursement of owners of certain cattle killed in accordance with agreements made under authority of chapters 353 and 546, Acts of 1922 \$100,000 00

Brought forward from 1922 transfer from the Extraordinary fund 5,000 00

Brought forward from 1922 appropriation 7,110 68

Total amount appropriated \$112,110 68

Expended during the year for the following:—
 2,283 head of cattle killed (chapter 353, Acts of 1922) \$67,835 22
 Unexpended balance 44,275 46

\$112,110 68

¹ This amount reduced by \$31.50 refunded on account of expense of previous years.

The average amount paid for condemned tuberculous cattle for the year is \$24.27.

Fifty-seven claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$1,355.

One hundred and two unpaid claims covering 1,011 cattle, to which provisions of chapter 353, Acts of 1922, apply, remain unpaid, amounting to \$28,367.10.

Two claims amounting to \$100, applying to horses condemned and killed during the year because affected with glanders, remain unsettled.

There has been received during the year from the sale of hides and carcasses of condemned animals \$127.60.

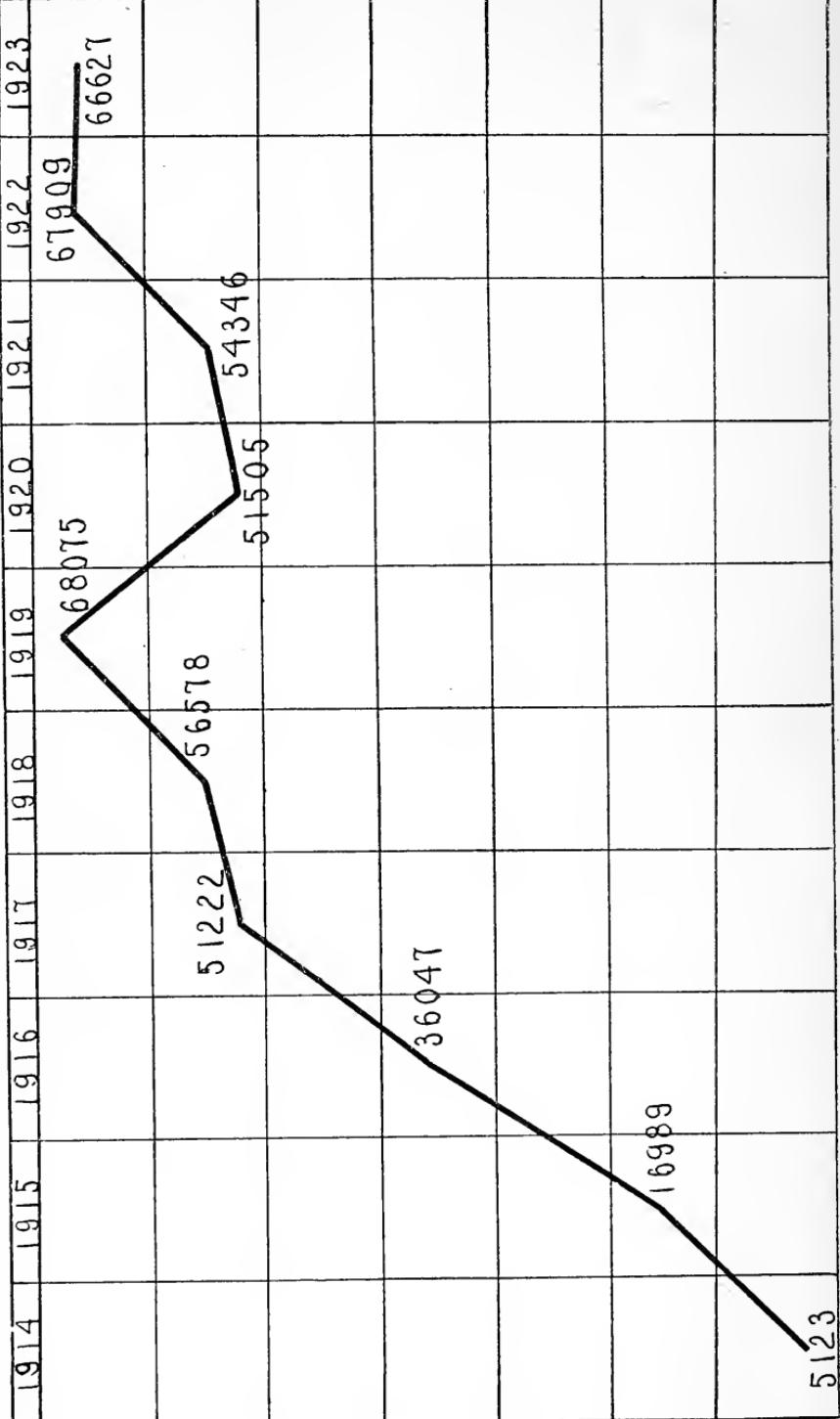
Respectfully submitted,

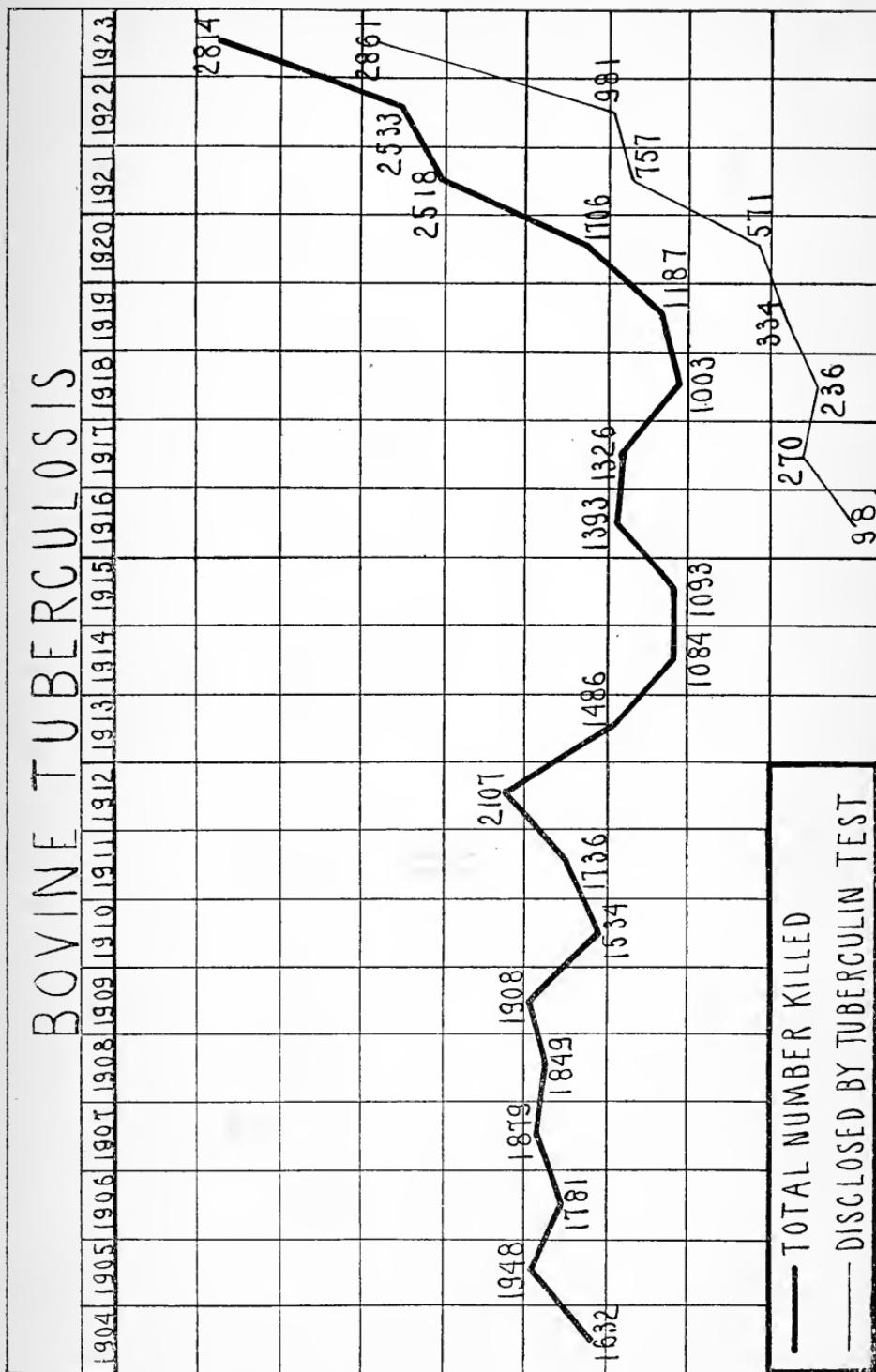
LESTER H. HOWARD, *Director.*

APPENDIX.

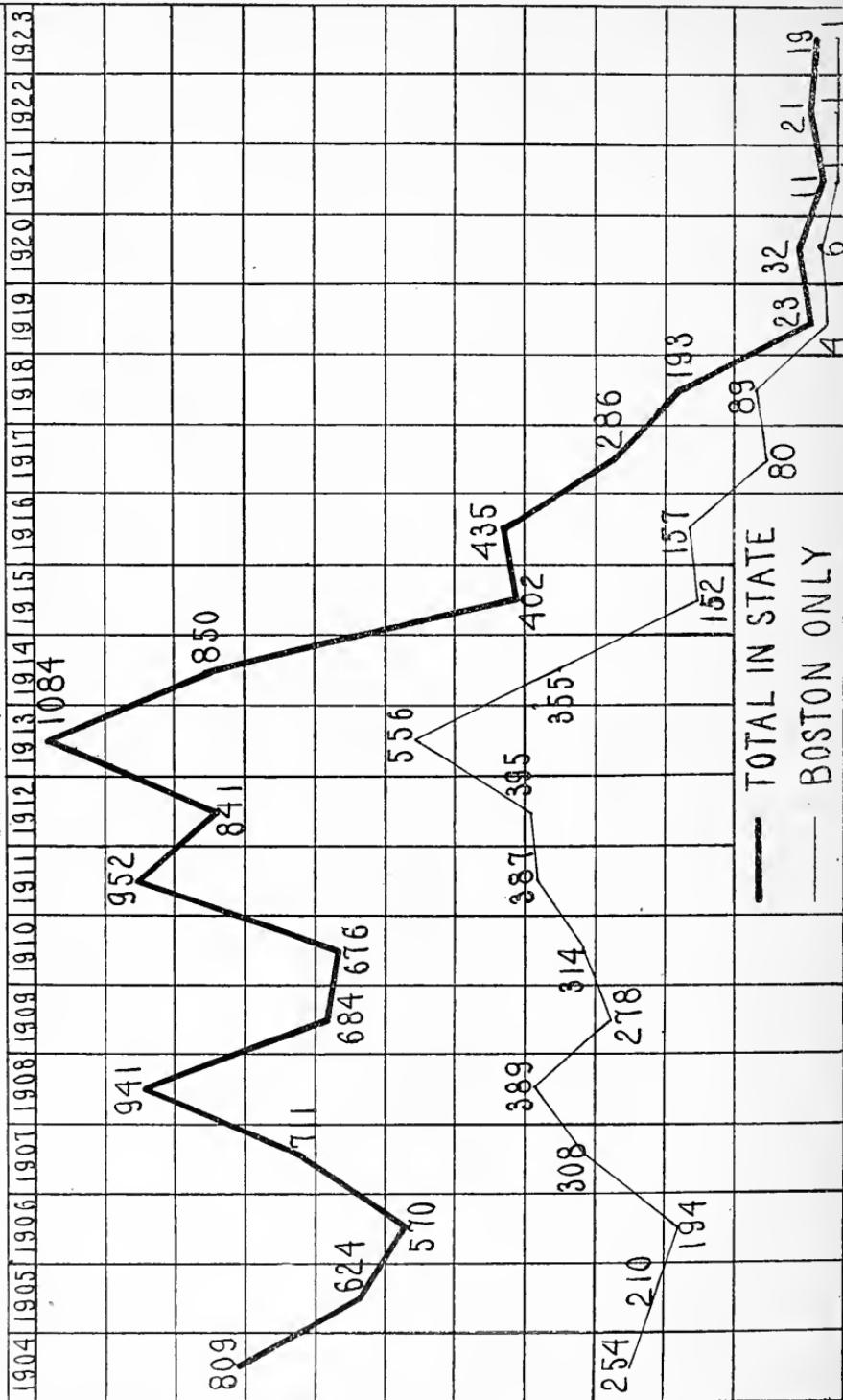
The following graphs show the work of the Division of Animal Industry in control of the principal contagious diseases of animals for a period of years.

HOG CHOLERA CONTROL - INOCULATIONS -

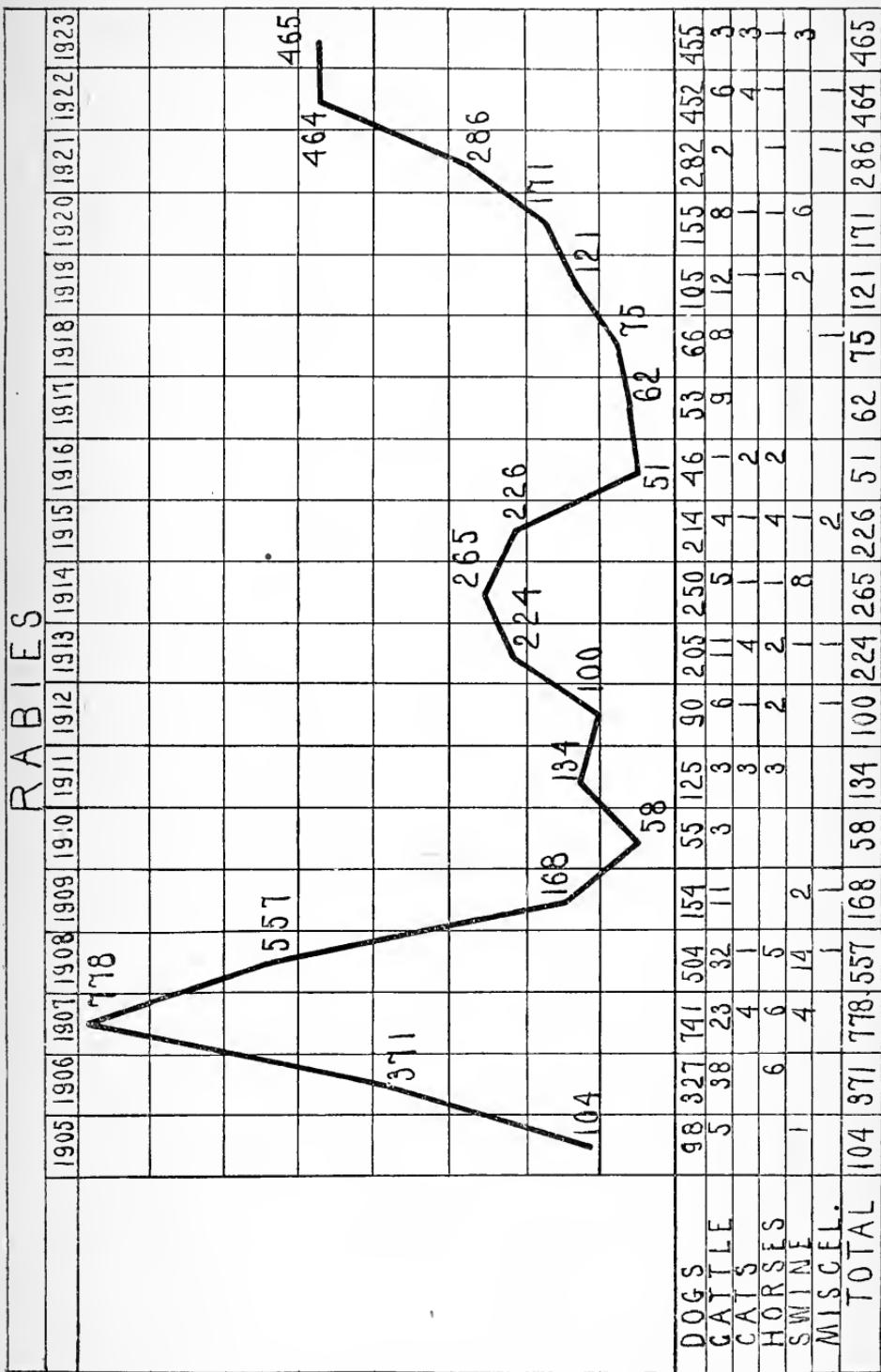


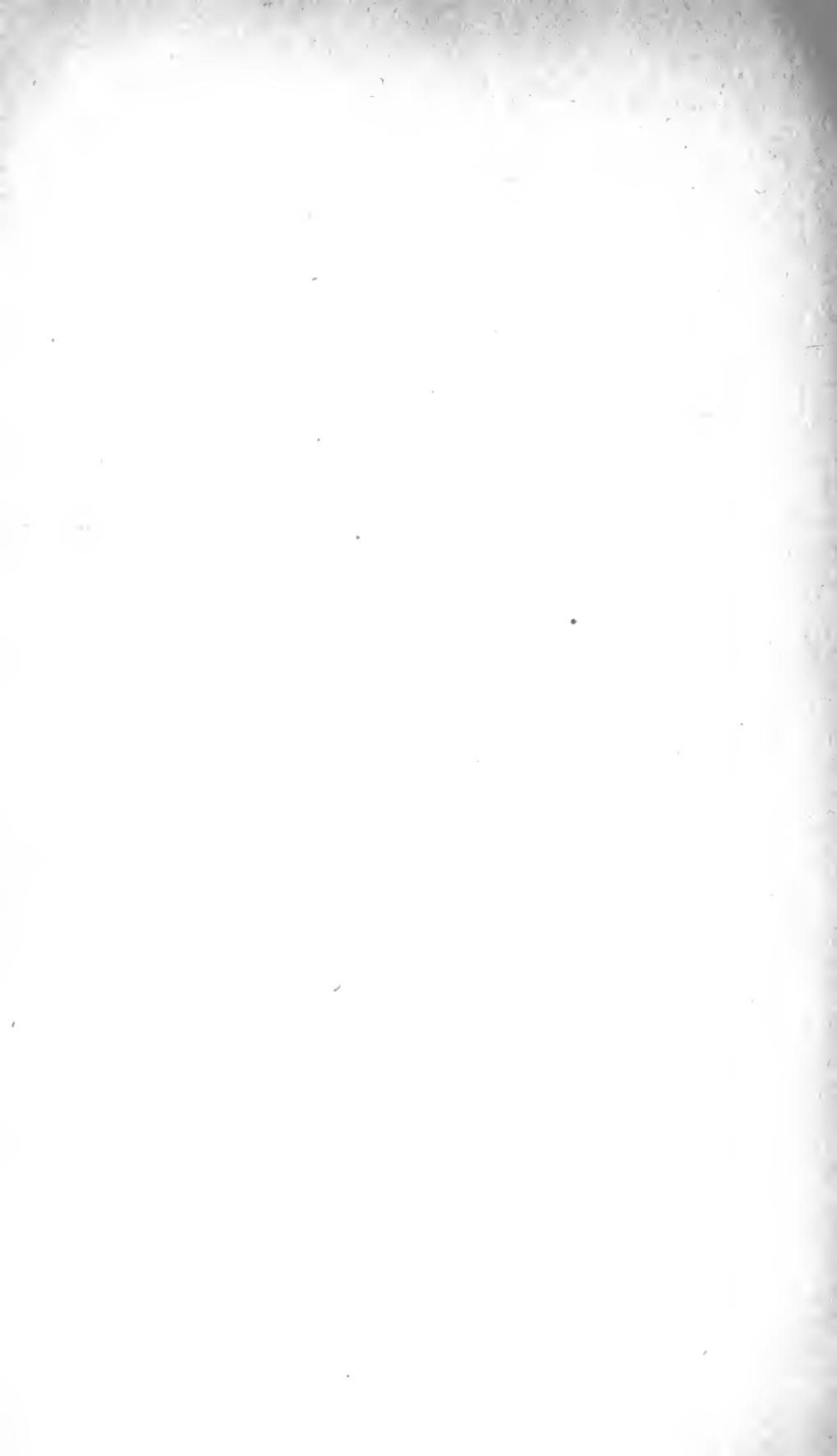


GLANDERS



R A B I E S





The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1924

DEPARTMENT OF CONSERVATION



MASS.
DOCS.
COLL.

The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY.
BOSTON, NOVEMBER 30, 1924.

To the Commissioner of Conservation.

I have the honor to present the following report of the work of this Division for the year ending November 30, 1924.

The Division attempts first of all to prevent the outbreak of contagious disease among our domestic animals, and to that extent assist in maintaining them in a condition of health. If such can be accomplished it operates to render them a source of revenue to their owners and to conserve in great measure that portion of the public food supply derived from their products while living and from their carcasses when slaughtered. The quality and nutritive value of this portion of our food supply is also found to be in direct ratio to the health of the animals producing it.

The dairying industry depends for its success on the production of large quantities of animal products of standard quality, and for good volume and high quality healthy animals are a first necessity. Neither propagation in sufficient numbers nor satisfactory development to maturity or to the point where their products become a source of revenue can be expected in animals affected with any form of contagious disease.

The relation of animal disease to the public health should be referred to. A diseased animal is sometimes found to be the source of the contagion of glanders, tuberculosis, rabies, anthrax, and other diseases appearing in the human subject. Such cases are fortunately of rare occurrence but their high mortality rate when attacking man calls attention to the vital importance of controlling these maladies at their most common source, and if possible eradicating them entirely from the animal kingdom.

Whereas the work of the Division this year in many of its less important branches has been of approximately the same volume as of recent years, the request for service in our most important branch—the control and eradication of bovine tuberculosis—has called for largely increased activity. The provisions of the so-called tuberculin test law have proven to be of such great aid to the progressive cattle owner who desires to raise and use only healthy cattle, and the number of local health boards which have directed their attention to the public health phase of the movement to eradicate all disease from animals whose dairy products are used for human consumption have so rapidly increased, that the result has been a greatly increased demand for our service in this direction.

It has happened that the general popularity of this work has far exceeded our expectations, and while we have been physically equipped to attend to all requests for the application of the tuberculin test, the exhaustion of funds appropriated for payment of indemnities for reacting cattle necessitated a slowing up of the work during the latter part of the fiscal year. We have on file a large number of requests from farmers, dairymen and the raisers of purebred cattle, to place their herds under our supervision for the eradication of tuberculosis, and it would seem that the amount of progress we may expect to make the coming year in this direction will depend largely on the funds appropriated by the incoming legislature for payment for cattle found to be diseased.

The prevalence of rabies is at all times a condition which calls for prompt attention on the part of this Division. Although somewhat reduced from the record of recent years it is still a situation of dire importance calling for strict regulatory measures. The lax enforcement of the dog laws and the lack of co-operation on the part of the public in ordinary preventive measures are often the cause of serious outbreaks of the disease, or make their control a much more serious problem.

The prevention of contagious diseases of swine constitutes quite an important part of the work of the Division, in volume amounting this year to about the same as in recent years.

While our recommendations to swine owners are for them to call for our service before sickness appears in their herds so that the animals may be given the present day successful immunization against disease, nevertheless it often occurs that they wait until too late for preventive treatment to be successful.

Hog Cholera, Hemorrhagic Septicemia and various mixed infections are the contagious diseases prevalent in this species and for the control of which our service is rendered.

The regular continuous duties of inspection of horses, cattle, sheep and swine and of the sanitary conditions under which they are kept, execution of measures in prevention, cure or control of contagious diseases among all the several species of domestic animals, and the condemnation and slaughter when necessary of such as are affected with certain forms of such diseases, followed by supervision of the burial or other disposal of their carcasses, have been attended to promptly and in accordance with the methods found by many years' experience to be most effective.

The enforcement of regulations applying to the transportation of animals from other states to Massachusetts is another important duty of this Division, as by these methods we make sure that no prevalence of contagious disease shall be caused by the entry of infected animals. Mallein testing of horses from certain states in which glanders has extensively prevailed, and tuberculin testing of dairy or breeding cattle shipped from other states and not accompanied by satisfactory records of tuberculin test, are continuous activities calling for prompt determination of actual health conditions at time of entry. Although Federal regulations now require that all cattle of whatever age shipped from one state to another for any purpose except immediate slaughter shall have passed a tuberculin test applied by an approved veterinarian before the shipment takes place, and we ordinarily depend on this regulation being complied with by cattle shippers, yet we find that many cases of violation occur either intentionally or through ignorance of the existence of any regulatory measures of the United States government applying to this class of interstate commerce. In such instances official action becomes immediately necessary in protection of the live-stock interests of the state, and all animals involved are immediately inspected and tuberculin tested. Failure to pass inspection and test requires condemnation and killing, without indemnity to owner unless post-mortem examination discloses no evidence of disease.

Following is a gross summary of the Division's work for the year ending November 30, 1924: —

GENERAL SUMMARY

CATTLE

2,372 Massachusetts cattle were physically examined by inspectors.

417 Massachusetts cattle were tuberculin tested by Division veterinarians at Brighton stockyards.

30,174 tuberculin tests of Massachusetts cattle were made by Federal and State veterinarians in co-operation.

1,542 interstate cattle were tuberculin tested by Division veterinarians.

9,917 tested interstate cattle were examined at Brighton and their test records viséed.

5,755 tested interstate cattle were inspected and identified at other points.

855 animals on 111 farms in 48 towns were given preventive treatment against blackleg.

19 animals were given preventive treatment against anthrax.

59 animals were given preventive treatment against hemorrhagic septicemia.

[403 visits to unsanitary premises were made by district veterinarians.

HORSES

242 tests for glanders were made by Division veterinarians.

2,506 interstate horses were examined by inspectors.

4 tests of whole stables were made by Division veterinarians.

DOGS

1,680 cases of possible rabies in dogs were investigated.

SWINE

73,290 head of swine were treated in prevention or cure of hog cholera.

28,208 head of swine were treated in prevention or cure of hemorrhagic septicemia.

MISCELLANEOUS DISEASES

216 cases of miscellaneous diseases were investigated by Division veterinarians.

BOVINE TUBERCULOSIS

The division's work in the control and eradication of this disease has been carried on this year by continuation of the policies formulated in 1922 for the administration of the so-called tuberculin test law (chapter 353, Acts of 1922).

In addition to work under the provisions of that law we resumed on August first of this year reimbursement to owners for animals which on physical examination alone were found to be diseased; we have done this under the provisions of a law which is practically a re-enactment of one formerly on the statute books for many years, but which was repealed in 1922. The conditions which arose as a result of this repeal were recognized as having a very deterrent influence on the eradication work as a whole and efforts were therefore made to have enacted a law carrying similar provisions to the one repealed. These efforts were successful, and we have worked under the re-enacted law's provisions for the latter portion of the year, a period of approximately four months.

Under these two plans of eradication more effective work has been possible and we feel that more real progress has been made this year in the extermination of tuberculosis than during any similar period in the history of this service.

While the extent of the disease in our herds as revealed by the tuberculin test has been somewhat appalling and calls attention to the enormity of the problem of eradication as a whole, we feel confident that if the work can be continued in a vigorous way under present policies of administration over a period of years, the result cannot but be satisfactory and justify the large expenditure of time, labor and money which the procedure will entail.

If the work goes on in accordance with recommendations justified by this year's results, it is possible that we will soon be able to show a gradual diminution in the prevalence of this great plague which for many years has devastated our herds and has caused such a great economic loss to cattle raisers, to milk producers, to the many business interests allied to the livestock industry, not to mention its very great influence on the public health.

In Massachusetts, as in all other States of the Union, the Federal government is co-operating in this work under the provisions of its "accredited tuberculosis-free herd plan," instituted in 1917 by its Bureau of Animal Industry. In the seven years during which this plan has been in operation in different parts of the country in connection with local State activities, the combined service has progressed to a point where it is recognized as a public work of undoubted value. Its increasing popularity from year to year, as attested by the large number of herds voluntarily submitted for test under its regulations, and the published statistics of its practical workings both in individual herds and in defined areas such as towns or whole counties where all the cattle have been tested, would seem to indicate that this plan was well conceived, has been efficiently administered, and has accomplished wonderful results in the eradication of the disease.

The official tuberculin test under the provisions of Massachusetts laws is applied only on request of the cattle owner, and only if he agrees to comply with the rules and regulations devised for proper administration of the law. The principal provisions of these rules and regulations refer to the disposal of animals which react to the test, the cleansing, disinfection and necessary repairs of the premises where they are found, and the determination of the health conditions of the cattle to be afterwards added to these herds under official supervision.

We find the requests for this service showing a steady increase in number from month to month as cattle owners become more thoroughly informed of the opportunity which it offers for elimination of diseased animals from their herds under conditions allowing fairly liberal reimbursement for them. We also find other potent factors influencing their decisions. In many communities different civic

or welfare organizations are now discussing the desirability of regulating by municipal authority the purity of their milk supply in this particular direction by prohibiting the sale of raw milk unless produced by animals which have passed a tuberculin test. Several municipalities have already taken this action. Many milk producers have foreseen the probable establishment in the near future of regulations of this kind and have decided it to be good business policy to get their herds into a condition where they can at once comply with the new requirements when instituted.

At the end of the year, November 30, 1924, we have 195 herds comprising 6,186 cattle which have been accredited by the Federal government as tuberculosis-free.

Animals in accredited tuberculosis-free herds command an increased price when offered for sale, and their market value is bound to still further advance as testing becomes more general and the demand for clean cattle becomes greater. Dairy products from herds which can be officially certified to as healthy are already in greater demand at advanced rates than the present supply can fulfill.

There are, therefore, many reasons for the rapidly increasing number of requests for our service under the new law, and we foresee that the end of the coming year will show very many herds added to our list as tuberculosis-free. New requests for this service are constantly being presented, and on November 30 there were 157 on file, which will be complied with as soon as possible.

Following is the year's record of tuberculin tests under the provisions of chapter 353, Acts of 1922:—

Total number of herds tested: 1,383.

Total number of cattle tested: 30,174 (purebreds 11,910, grades 18,264): passed the test, 24,549: reacted, 5,625: percentage of reactions: 18.6.

First test, 650 herds, 11,418 cattle: passed, 6,818: reacted, 4,600: percentage of reactions: 40.2.

Second test, 335 herds, 4,689 cattle: passed, 4,173: reacted, 516: percentage of reactions: 11.

Third test, 297 herds, 10,232 cattle: passed, 9,737: reacted, 495: percentage of reactions: 4.8.

Tests made of 101 herds comprising 3,835 cattle previously accredited and due for retest, showed only 14 reactors, i.e., thirty-six one hundredths of 1 per cent.

In commenting on the above statistics attention is again directed to the fact that although the percentage of reacting cattle found — all records of tests being included — is 18.6, that figure does not correctly indicate the prevalence of the disease, as the records on which it is computed comprise not only first tests of herds but also the retests subsequently made in many of the same herds after the animals reacting to previous tests had been removed. A better basis on which to estimate the percentage of tuberculous cattle in the State which the tuberculin test would disclose if applied to all herds would be the results we have obtained by first tests only. The percentage so computed from this year's records is 40.2, which figure is much higher than that of last year, showing an advance from 31 per cent. This again is not a sound basis for computation as much of our work this year has been in herds kept for dairying purposes of an intensive character, whose owners have really been forced to call for the test because of local health regulations which demand tested herds as a necessary condition for the granting of permits for the sale of raw milk.

A comparison between the number of reactors found in grade animals and those found in purebreds shows 24.5 per cent of the former and only 9 per cent of the latter.

This may be accounted for largely by the fact that many purebred herds, on account of their high values, have been kept free from the disease by constant testing by private veterinarians over a period of years, while herds of grade animals of less money value have not been given similar attention.

As clearly showing what a continuous use of the tuberculin test may be expected to accomplish, a comparison of percentages of reactors found on first, second and third tests, showing a decrease from 40.2 per cent on first tests to 11 per cent on second tests and thence to 4.8 per cent on third tests, is at once convincing. There seems to be no doubt that continued work of this kind, efficiently and faithfully carried out, with due regard for all the necessary precautions against re-infection, will result in rapid progress toward elimination of the disease.

An "accredited" herd is one which has passed three semi-annual or two annual tests without a reacting animal having been found, and our record of the retests of such herds, showing that only thirty-six one hundredths of one per cent reacted, indicates that continuous tuberculin testing with "accreditation" in view is well worth while from the standpoints both of the cattle owner and of the officials in charge of the control of this disease.

On October 15, 1923, a regulation went into effect at the Brighton stockyards, requiring that all cattle sold at those premises, unless for immediate slaughter, must have passed a tuberculin test. Formerly cattle arriving at those premises from Massachusetts farms were not tested and were sold without restriction.

The Brighton stockyards is an important distributing center for dairy cattle, and it would seem a very necessary control measure that the animals there sold to go to the farms in different parts of the State should be tuberculosis-free. The good effect of this regulation as an eradication measure has already been shown by the record of a full year's work under its provisions. During the year, 4,112 head of dairy cattle from Massachusetts farms have been received at the Brighton stockyards; 3,689 were immediately released for sale as they were accompanied by satisfactory certificates showing record of a recent tuberculin test made by an approved veterinarian; the remaining 423 were held for a test by our veterinarians. Of these latter, 4 were released for slaughter and not tested, 2 were returned to owner because not in condition to test, 314 were tested and passed as tuberculosis-free, and 103 showed a reaction to the test. Of these reactors 91 were slaughtered and 12 were returned to the premises from which they came, each animal bearing an ear tag identifying it as a reactor. Chapter 156 of the Acts of 1924 provides punishment for any person who removes the tag from a reacting animal, who in any way disposes of the animal for any purpose except slaughter, or who neglects or refuses to have slaughtered a reacting animal sold to him for that purpose. The percentage of diseased animals disclosed by the test (25 per cent) proves the value of this regulation, and points to its efficacy as a means of limiting the spread of bovine tuberculosis from farm to farm within the State.

Interstate Cattle

Federal regulations applying to the shipment of dairy or breeding cattle from one State to another now require that all animals of that class of whatever age shall have passed a recent tuberculin test before the shipment takes place, an exception to this regulation being that animals from "accredited tuberculosis-free" herds may be shipped interstate without additional test.

These Federal regulations relieve us to a large extent of the former necessity of applying the tuberculin test to the majority of cattle arriving within the State, and consequently this branch of our work has been very much diminished since this Federal regulation became operative.

The legislature of 1924 passed a new law applying to cattle shipped to Massachusetts to be used for dairy purposes. Whereas, formerly they could be shipped without test to premises designated by the United States Department of Agriculture as "public stockyards" and there quarantined and tuberculin tested, the new Massachusetts law requires that they shall be inspected before shipment to this State, and passed as healthy by either a Federal or State veterinarian. The word "inspected" in this law is interpreted to mean tuberculin tested.

Our inspectors stationed at the Brighton stockyards which premises are classified by the Federal Department of Agriculture as "public stockyards" are thus relieved of a certain amount of tuberculin testing. It is necessary, however, to visé the records accompanying these cattle and identify the animals as the ones recorded; so we are not relieved to any great extent of the inspection service maintained for many years at this point. We still find it advisable to occasionally apply check tests on cattle shipped as "passed the test" to make sure that the efficiency of the testing is up to the proper standard and that dishonesty or misrepresentation has not been practiced.

The Receiving Station for cattle consigned to the Brighton market formerly maintained at Watertown has been discontinued and the only one now maintained outside of Brighton is at Somerville, where the animals are under the same quarantine regulations as at the main yards at Brighton.

During the year 11,375 interstate dairy cattle have been received at Brighton, either shipped thereto direct or through the other receiving stations mentioned. Of these, 3,746 were from New Hampshire, 4,521 from Maine, 2,760 from Vermont, 347 from New York, and 1 from Rhode Island. Of the total number received 9,917 were released for sale on approved records of tuberculin test, and 1,458 were held for test by State and Federal officials, the reactors being slaughtered.

At other points in the State there have been received 5,755 dairy or breeding cattle from other States, all tuberculin tested either before shipment or immediately after arrival in cases where interstate regulations have not been complied with through ignorance or wilful intent.

The total number of dairy or breeding cattle received from other States at all points in Massachusetts shows a grand total of 17,130, approximately the same number as in 1923, a decrease, however, of 312.

CONTAGIOUS DISEASES OF SWINE

Hog Cholera is the principal disease of swine that is contagious and the one which originally directed the attention of live-stock officials to the importance of applying measures of control to diseases affecting that species. Eleven years ago when the campaign against this disease was first started in Massachusetts, it was prevailing so extensively that many whole herds were being wiped out of existence, or the deaths were so many that swine production as an industry was rapidly being abandoned on account of the financial losses sustained. A large proportion of swine raisers, who had previously been successful in the production of pork for the market by the utilization of garbage for feeding the animals, were being forced to abandon this cheap material for other of much higher cost, or go out of business. All the elements necessary to perfect nutrition and rapid growth of swine are to be found in ordinary household garbage, and the feeding of this material, which in many communities had been entirely wasted, originally promised to become not only a great community economy but also the foundation of a successful business. The venture, however, was proving disastrous on account of garbage frequently being the carrier of disease by scraps of tissue originally coming from swine slaughtered and sold after being affected with hog cholera, and not until the development of a treatment by which swine could be immunized against this infection could they be safely raised to marketable age in sufficiently large numbers to be profitable.

When this Division undertook a campaign against the prevalence of hog cholera, immunization had already been successfully developed by the United States Bureau of Animal Industry and has since been progressively improved to the point where it is now generally recognized as a safe, effective and inexpensive treatment, sure to prevent the disease if properly administered before infection takes place. We have therefore always urged all swine owners to have their herds protected by applying early to this Division for this service, which is rendered free of charge, the owner having to pay only for the materials used.

As in many other ways where people are unmindful or careless of their own best interests, swine owners often delay their requests for service until too late for complete protection against disaster, as we can only partially avert their losses if hog cholera has already broken out on their premises. However, even in such cases we are generally able to minimize losses to a degree well worth while, but always regret financial losses that were really preventable.

There can be no doubt of the great economic value of the work of the Division in the prevention of contagious diseases of swine. It is a work of real conservation, second only in importance to our work in the control and eradication of bovine tuberculosis.

When we are able to immunize swine against the ravages of *one* disease only (hog cholera) we are doing much to increase that portion of the food supply which is produced within the State and at the same time are helping to make the raising of swine a profitable industry. While hog cholera is the most disastrous of swine diseases and our work in its prevention is perhaps of more importance than in the treatment of other contagious diseases of that species, yet the occurrence of other infections in which our services are frequently sought is a matter of no small importance to the swine raiser.

Being called to immunize a herd of swine against hog cholera we frequently find some other condition as the cause of trouble and which in some instances co-exists with cholera.

The skill of a trained field veterinarian is often put to a severe test in differentiating between two diseases somewhat alike in their exhibition of symptoms, and if multiple infections are found to determine which of them is the primary cause and then use his knowledge — gained only by experience — to map out a combination treatment which will be effective in reducing the mortalities. Our veterinarians, many of whom have been engaged in this branch of our work for several years, have become very expert as diagnosticians and are rendering service which seems to be effective in control of disease and at the same time very satisfactory to swine owners. There is no other work in our Division in which correct diagnosis, arrived at promptly, means more to successful outcome of treatment than in the control of contagious diseases of swine.

During this year there have been 73,290 treatments applied to swine in the prevention or cure of hog cholera, an increase of 6,663 treatments over those applied in the previous year. The animals comprised 607 herds varying in size from one pig only to some exceeding 4,000 in number. These herds were located in 196 cities and towns and required the making of 1,628 visits by one or more field veterinarians.

Attention is directed to a graph in the appendix to this report showing the number of treatments applied year by year since the work was begun, and showing also that the present year has been our busiest one in this direction.

Hemorrhagic Septicemia in Swine.— This disease, otherwise known as "swine plague" has prevailed to a somewhat increased extent this year — our records showing that the number of treatments applied total 28,208, an increase of 1,668, over the previous year. It may be the case, however, that no more swine have been affected but that more owners have become convinced of the advisability of treating their swine in *prevention* of this infection as well as in immunization against hog cholera. In many instances treatment for both diseases are applied at the same time when conditions are favorable for such combination.

Private veterinarians may use without official restriction the various biological preparations manufactured for treatment of this disease, and in some sections of the State many swine are treated by them with a marked degree of success. It happens, however, that in many outbreaks of this disease the owner fears hog cholera as the cause of the sickness shown, and applies to this Division for its service; the animals involved in that way come under our supervision and we render proper service in the emergency.

Animals treated for hemorrhagic septicema are this year three times in number of those treated two years ago — showing the increase of our work in this direction to be a rapid one.

RABIES

From the control point of view rabies is one of the most important diseases of a specific infectious nature which affects domesticated animals. Because of its high mortality rate, its constant prevalence in practically all countries and its ready communicability to animals and man the problem of its control demands constant attention.

The disease prevails mostly among dogs and they are the means by which it is generally spread, but all animals are susceptible to it and under circumstances favorable to its communicability may become its victims. Being readily transmitted to the human subject by the medium of bites there is more or less danger to the public in a community where an unusual prevalence occurs.

The public health side of the problem of control of this disease is recognized as an important one and one which requires close co-operation on the part of Division officials with State and Municipal health authorities and with medical and veterinary practitioners who may be brought into connection with cases which involve the exposure of animals or persons to the infection.

By the use of the Pasteur treatment it has been possible for some years to prevent development of the disease in persons who have been bitten by rabid animals, and the development of the preventive treatment for animals has now been brought

to a degree of perfection where its results are comparable with those of the Pasteur treatment of the human subject.

Owners of dogs may now have their animals completely immunized against the disease so that even if exposed by the bite of a rabid animal development of the disease seldom takes place.

If the preventive inoculation of dogs against rabies, — now proven so successful — could have a country-wide application it would be a most powerful factor in the control of the disease. The fact that wild animals are often victims of this disease, and are not subject to control, may operate, however, to keep the infection alive and maintain it at a high degree of virulence. It is therefore improbable that complete extermination can be looked for in the near future.

The prevalence of rabies might be limited to an almost negligible point if the dog laws now on the Statute books were completely enforced. The compulsory licensing of dogs would first of all greatly reduce their numbers, and if stray and ownerless dogs were impounded and disposed of, and the more valuable ones immunized against the disease, a rapid disappearance of this world-wide infection would undoubtedly take place.

In 1922 the general prevalence of rabies in Massachusetts had gradually increased from the year 1918, progressively spreading from one community to another, sometimes disappearing from one section of the State only to be found breaking out in another, so that the total number of cases recorded in the State as a whole remained at a high point. In 1922, however, the disease seemed to have arrived at the peak of its prevalence; it remained nearly stationary during 1923, and the present year's record shows a decided drop in the number of positive cases. We confidently look forward to a still greater lowering of the number in 1925.

The control of rabies in any one community can generally be accomplished fairly promptly if we can get all agencies co-operating to this end. Among these agencies strict enforcement of the dog license laws is of great importance. Unfortunately, however, these laws seem to be practically ignored in many towns and cities or are only spasmodically enforced. Many dogs, especially those of low grade and value, would be destroyed if any one was obliged to pay for a license to keep them, and, as animals of this class are very potent factors in the spread of rabies, the lax enforcement of the dog license laws is an unfortunate condition, especially in communities where an outbreak of rabies has occurred and control measures of every kind are necessary to its suppression.

Selectmen, mayors and boards of aldermen have the authority to issue orders calling for the muzzling or restraining of the dogs in their municipalities whenever the same seems to be necessary. In the excitement attending a fresh outbreak of this disease, when public opinion is acutely alive to the dangers of the situation, such orders are deemed necessary and are at first generally well observed by the dog owners and well enforced by the police authorities. As soon, however, as the first excitement has subsided, we find that in many instances there is no observance of them by the public, no enforcement by the authorities, and conditions relax to the same level of non-attention as in case of the State laws regarding the licensing of dogs.

Effective control of rabies in any community is not to be gained in a short time, and how to offset the perplexing conditions of non-observance and non-enforcement of State laws and local regulations is yet a problem.

Dogs which have been exposed to a positive case of rabies are ordinarily quarantined for a period of 90 days, but if owners have them immunized we deem it safe to release them from quarantine when 21 days have elapsed following the completion of the treatment if no symptoms of rabies have developed during that time.

During the year ending November 30, 1924, 1,607 animals were reported to the Division for diagnosis, observation or quarantine on account of the prevalence of rabies, and 73 reported cases were brought forward from the year 1923. Of these 1,680 animals, 316 dogs, 7 cattle, 1 cat and 2 horses proved to be positive cases. Diagnoses were made either by clinical symptoms, or laboratory examination of brains, supplemented in many instances by the inoculation of small animals.

Comparing these statistics with our records of the year 1923 we find that there have been 139 fewer positive cases this year. This reduction in one year of approx-

imately 30 per cent in the number of positive cases augurs well for a still more satisfactory record for the coming year.

The Division received reports during the year of 1,004 persons who had been bitten by dogs, and 10 persons who were bitten by cats. In all cases reported of persons bitten, the local inspector of animals of the town or city where the animal is owned or kept is ordered to make an examination of the animal, and, even if it appears to be healthy, to have it quarantined for a period of 14 days for observation. This is a measure directly in protection of the public health. If by any chance the biting animal is affected with rabies at the time the bite is inflicted, unmistakable clinical symptoms of the disease will probably appear before the end of the quarantine period, and in such cases the bitten persons will have definite knowledge of that fact and will seek medical advice. If at the end of the 14-day period animals which are quarantined on account of biting persons have not developed symptoms of rabies, they are released from quarantine.

The majority of the animals which inflicted bites on 1,014 persons as above recorded, were released at the end of the quarantine period showing no symptoms of rabies.

Of the 1,680 animals reported for observation 89 dogs and 3 cats were—as far as could be ascertained—ownerless, and the dogs unlicensed, and 46 of these ownerless dogs proved to be positive cases of rabies.

GLANDERS

What seems to be approximate extermination of glanders is the present situation in Massachusetts regarding that disease.

A graph in the appendix to this report of Division activities for the year, shows at a glance the rapidly decreasing prevalence of this disease for the past twelve years reaching in 1924 the lowest point ever recorded by this office during its more than thirty years experience in its work of control. The occurrence of only six cases during the twelve months and the location of one-half of them in one town and in one stable, shows that general prevalence of this disease no longer exists. All of the cases this year have occurred in a section near to the border line of an adjoining State, the capital city of which is a market for the cheaper class of horses and where auctions are held weekly. It is also the nearest horse market to this particular section of Massachusetts. As the disease has been practically exterminated in all other sections of our own State, we believe that the horse market of the neighboring State referred to is the source whence comes the majority of our cases.

While our regulations require that all horses coming into the State from that source be accompanied by a permit from this office, we are well aware that the regulations are frequently violated and surreptitious interstate movement often takes place.

The practical extermination of glanders has been due first of all to the use of modern methods of diagnosis, including in such the mallein testing of all horses exposed to the disease such as the stable mates of all positive cases; the closing of public watering troughs in towns and cities where cases have occurred has been a very potent factor in limiting the extension of local outbreaks; the decreasing number of horses now used for commercial purposes, and their better working conditions are also factors in the improving situation. The horse's work-day has been shortened and he has been largely relieved by the motor truck of the heart-breaking long hauls of heavy loads which formerly were his task. The effort of various organizations having his welfare as their principal object has done much to educate his caretaker to an understanding of his needs and to a realization of his greater usefulness if well fed, comfortably stabled and properly cared for. All of these are influences of value in the control and eradication of disease of any kind in any species of live stock.

The horse is still a necessity in many lines of commercial trade, and on the average New England farm he is still the economic power. He and his near relative, the mule, are indispensable in military operations, and as a means of healthful recreation and pleasure the horse is in much greater demand than at any time for many years. Note his continuing importance as a drawing card at all animal expositions where the different types, draft, coach, saddle or speed, still receive genuine attention of interest.

Another and one of the most important uses of the horse to-day and in which he is well-nigh indispensable is in the manufacture of various biological preparations, and this materially increases the demand for healthy horses for their manufacture. Horses must therefore still be produced in considerable numbers and maintained free from contagious disease.

There were 48 horses reported during the year as suspected of glanders, of which number 4 proved to be positive cases of the disease. Horses in any way associated with these positive cases and classified as "contacts" — 27 in number — were mallein tested, 2 positive cases being found, making a total number of 6 positive cases for the year.

Of these six cases, 4 were condemned on clinical examination, and diagnoses in the remaining 2 cases were arrived at either by use of the ophthalmic mallein test or by laboratory examination of blood samples submitted to the complement-fixation test.

Of the reported cases 1 died or was killed by owner, 66 of the total of reported and contact cases were released from observation as not diseased, and 2 await final action. In Boston, formerly the storm center of glanders, no case has occurred this year.

The laboratory work in this branch of the service is quite necessary and very important, and this year has consisted of the complement-fixation test of 90 samples of blood taken from 64 horses, for the purpose of diagnosis.

Ophthalmic mallein tests to the number of 73 have been applied to 62 horses owned in the State permanently, and 79 tests to 79 horses recently arrived from other States, a total of 152 tests to 141 animals. The results of these tests were 9 positive, 143 negative.

Under present regulations (Department Order No. 36) horses shipped to Massachusetts from New York, New Jersey, Rhode Island and Connecticut must be accompanied by a permit of the Director of Animal Industry. From these States there has been reported the arrival of 2,585 horses. Excepting those brought in illegally they have been mallein tested on arrival unless accompanied by an approved record of test, or shown to be horses of the better class which ordinarily do not become exposed to the disease.

Many of the animals from these States are of the better class referred to, used for carriage work, breeding, racing or exhibition purposes, and many of them are brought to the State for the summer season only. These of the better class do not require special attention on our part, but second-hand horses, trafficked in and sent from the markets of one State to those of another for public sale, have been specially watched on account of their being considered more liable to be subjects of contagious disease.

MISCELLANEOUS DISEASES

Anthrax. — For the past two years no positive case of anthrax has been found. In some instances this disease has been suspected and so reported, but careful laboratory examination has in every instance proven the suspicions to be not well founded.

While we have been very fortunate in recent years in our freedom from outbreaks of this disease, we are not unmindful of the great damage an outbreak may cause, and often before control measures can be set in motion. The course of the disease is generally very rapid, often ending in the death of the animal attacked before a diagnosis can be made, or even before centralized control authorities can be notified. Frequently the first incident to which attention is called is the finding of a dead animal in stable or pasture with no cause of death apparent and no history of any animal having shown symptoms of sickness of any kind. Before the true nature of the trouble can be determined the exposure of many other animals may have taken place, some of which may succumb on account of the high virulence and rapid course generally prevailing in a sudden outbreak.

Unless carcasses are promptly buried the infection may be carried in numberless ways to surrounding territory and a serious prevalence occur.

The anthrax bacillus and its spore formations are extremely resistant to conditions which ordinarily destroy germ life, and remain potent for a long time — often for many years — living in the soil and ready to infect any susceptible crea-

ture which may come in contact with them. It therefore happens that places where it has existed at any time may remain infected and subsequent outbreaks may occur even after the lapse of years. Consequently, following a positive diagnosis of anthrax it becomes necessary to at once put in operation preventive measures against its future occurrence. Deep burial or burning of infected carcasses and material with which they have been in contact, disinfection of buildings, the burning over of surface ground where carcasses are buried or over which they may have been dragged, the protective inoculation of all exposed animals and those which afterwards are to be stabled or pastured on the same premises, and a thorough investigation as to possible sources of the original outbreak are the control measures which have generally been found to be effective, and to which our present favorable situation is undoubtedly due.

On several farms which have been previously infected we take the precaution to annually treat all susceptible animals with anti-anthrax serum and spore vaccine. An occasional death from the treatment occurs, but very infrequently, and the majority of the animals are given absolute protection against the infection.

We have one horse barn in the central part of the State which has remained infected with anthrax for several years, in spite of as thorough application of disinfectants as can be devised. This building is therefore permanently quarantined and no animals are allowed to occupy it except those previously immunized against the disease.

The communicability of anthrax to the human subject is well recognized, more or less danger existing to those whose occupations require the handling of hides and wool which may have been taken from infected carcasses of cattle or sheep. The Division's work in control of this disease has therefore a public health relation of considerable importance.

Preventive treatment was applied to 19 cattle this year.

Blackleg. — This disease, otherwise designated as "symptomatic anthrax" is one to which much that has been said in our reference to anthrax will apply, especially its sudden development, high mortality rate, resistant powers of its causative organisms, and the precautions necessary to prevent its spread. It generally develops, however, only during the pasture season and affects only the young cattle. It is unusual to find a case in an animal over two and one-half or three years of age, adult animals for some reason not being susceptible except in very rare instances.

Preventive treatment is also available and is completely successful in nearly all cases if applied before infection has taken place. This protection is considered to be effective for a period of one year at least. We have many farms in the State where blackleg has existed at one time or another, and we recommend that all the young cattle on these places be given the protective treatment, the best time for it being just before the cattle are turned out to pasture in the Spring. This service is furnished free and we find it quite generally availed of, especially in those sections where the disease has at any time prevailed.

On the occurrence of an outbreak we advise as a precaution the immediate removal of all susceptible animals from the pasture in which the disease has developed, and their treatment in prevention of the disease.

During the year 855 animals have been given protective treatment on 111 farms located in 48 different towns. Six deaths have been reported in untreated animals on farms located in 4 different towns.

The same general recommendations as in anthrax outbreaks, as to disposal of infected carcasses by burning or deep burial, are applicable following occurrence of this disease.

Actinomycosis. — A few cases of this disease are recorded every year and are generally disposed of by slaughter without reimbursement to the owner. If a case is not serious we allow the owner to have it treated by a private veterinarian, and in some cases allow the animal to be held for fattening purposes, under quarantine restrictions, to be released only for slaughter.

There have been 12 cases reported this year, one each in nine different towns, and three in one town. Of these, 5 have been slaughtered, 3 have recovered and been released from quarantine, 2 proved to be cases of other diseases, and 2 are undergoing treatment under quarantine restrictions.

Hemorrhagic Septicemia in Cattle.—This disease, of very great importance in some sections of the country, where large numbers of cattle are received through public stockyards, does not often occur in this State in the form which is reported from those sections. Our cases are of the acute, purely septicemic type, developing very rapidly and causing sudden death. At its onset it resembles anthrax in many of its symptoms and some cases are reported as that disease, the diagnosis of hemorrhagic septicemia being arrived at only by laboratory examination of material taken from the carcasses.

Ordinarily the spread of the disease can be prevented if we have early report of its outbreak, by immediate removal of contact animals to other premises and their treatment by preventive methods. The losses are generally confined to the animals first affected, deaths occurring so suddenly that diagnosis is not made, and treatment cannot be applied early enough to save them. Our efforts are therefore in many instances effective only in saving the other members of the herd which may have been exposed to the same infection.

Our records show that outbreaks of this disease have occurred in seven towns this year, in which 7 deaths occurred. Preventive treatment was applied to 59 head of cattle.

Although the function of this Division is the control and eradication of such diseases of animals as are contagious or infectious, we naturally have many other disease conditions referred to us which are not in that category.

Infestation by parasites whose sphere of activity or cycle of existence in whole or in part may be in intimate relation to the animal body, externally or internally, is a condition often seriously interfering with normal health. As such condition may be said to be a communicable one where certain kinds of these organisms are the ones involved, the Division is frequently called upon for advice as to the best methods of extermination.

The prevalence of scabies or "mange" affecting horses, cattle or sheep is at times widespread, and when brought to our attention demands quarantine measures. Much less prevalent than formerly, we have had a relatively small number of cases to contend with. Thorough application of remedies according to directions furnished generally results in destruction of the parasites within a reasonable period and the infested animals are then released from quarantine. Unfortunately many cattle owners are not disposed to carry out the necessary treatment or to take proper precautions against a spread of the infestation from one animal to another, and in that way they lose much of the normal producing power of their animals. There have been 175 cases of mange in cattle reported this year on 13 premises in 8 towns, and only 1 infested horse.

The treatment of conditions due to internal parasites was never before given the attention by progressive livestock raisers which it now commands, and much valuable information of a scientific character is now being taken advantage of by veterinarians and livestock owners. Wonderful results are being obtained in the way of better growth of young animals and increased production by the mature ones, and larger revenue in consequence.

Foot-and-Mouth Disease.—Massachusetts has been fortunate in escaping an invasion of foot-and-mouth disease this year. A serious prevalence of it has occurred in two States, and although these States—California and Texas—are at a great distance from us the many ways in which this contagion is carried and the great distance it sometimes travels made the livestock officials of many other States extremely anxious until the extermination of it was finally accomplished by the prompt and thorough work of Federal and local State officials in co-operative action. The disease has actively raged in many foreign countries for some years, and the trade relations of many of them with the United States have been very intimate. The countries of Continental Europe, Great Britain and those of Central and South America have been struggling for a long time to eradicate foot-and-mouth disease without success, and an invasion of this country has therefore been greatly feared. The National government and most State governments have on that account been fairly well prepared to cope with the invasion should it take place.

Unfortunately the disease existed in California for some little time, and had spread to many premises before it was diagnosed and called to official attention. However, the immediate rally of all Federal and State veterinary forces, thorough

investigation of the extent of spread, application of strict quarantine measures, prompt killing and burial of all exposed animals followed by thorough disinfection of all infected premises, and supplemented by restriction of shipment of all material which could possibly act as carriers of the contagion finally won the fight, and at present writing it is believed that complete extermination has been accomplished and that the disease no longer exists in that State.

On learning of the California outbreak Division officials immediately made investigation as to any possible danger of its spread to Massachusetts. Within a few hours it was learned that several cargoes of alfalfa hay had left the infected port of San Francisco only shortly before the outbreak was officially determined to be foot-and-mouth disease. Six of these cargoes were consigned in whole or in part to the port of Boston via the Panama Canal. This seemed to constitute a real danger of invasion of this State, and as other cargoes were consigned to New York, Philadelphia and Baltimore it was recognized that the bringing of foot-and-mouth disease from the Pacific to the Atlantic Seaboard was perhaps imminent and if occurring would certainly be a great calamity to the livestock interests of all eastern States at least. Consequently, all arriving cargoes were held in quarantine by Federal authority until the place of origin of the hay could be located. It finally transpired that with one exception the six cargoes consigned to the port of Boston had originated outside of California in territory free of suspicion. The origin of one cargo, however, could not be satisfactorily determined, and it was deemed unsafe to allow this hay to be released for delivery to Massachusetts farms. Agreement of the Federal government to reimburse the consignee for one-half the value of the hay was sought and obtained providing the Commonwealth would make an equal reimbursement. Appeal to the Governor and Council for funds was successful and the whole cargo of 695 bales (76 tons) of alfalfa was immediately destroyed by burning.

Its appraised market value plus the expense of destruction amounted to \$2,823.16, reimbursement for which was shared equally by the United States Government and the Commonwealth of Massachusetts. If by this prompt action an invasion of foot-and-mouth disease was prevented the money was well expended.

Subsequent to the California outbreak another occurred in the State of Texas. This outbreak was quickly recognized, however, and the same forceful measures immediately instituted by Federal and State officials, resulting in its quick extermination without extensive spread. The source of this outbreak was found to be the importation of breeding cattle from a section of South America supposed to be infected. No connection with the California outbreak was found on extensive investigation in that direction.

In California the disease first appeared among swine, which species are quite as susceptible to it as are bovine animals. This fact points to the necessity of expert diagnosis in any condition of swine showing symptoms in any way suggesting this disease.

A few reports have been received this year calling attention to cases in which foot-and-mouth disease was suspected. Investigation, however, removed the suspicions in every case.

We ask for prompt reports of suspected cases in order that true conditions may be at once determined.

Bovine Infectious Abortion.—This disease is a specific infection existing in practically every section of the country, and for many years has been the cause of much anxiety on the part of cattle owners and livestock officials on account of the great losses in breeding efficiency and a consequent diminution in the amount of dairy products which animals may be expected to yield under normal conditions of health.

For many years its cause, means of dissemination, and possible methods of control have been subjects of study by the most eminent scientific investigators in veterinary medicine, and while as yet there is not entire agreement on many phases of the subject, yet the wide discussions of them have brought forth the great importance of many correlating pathological conditions formerly ignored and not considered to be related to the phenomenon of premature birth or to that of true abortion.

The problem of control does not seem at present to be one for the application of regulatory methods by livestock officials. It is rather to be solved in individual

herds by private veterinarians who, in addition to well known hygienic measures of value, have at hand the evidence of many as to the practicability of immunization of animals by the use of biological preparations.

One State (Georgia) is making the experiment of prohibiting the shipment to that State of animals affected with abortion disease. The difficulties attending the enforcement of regulations to accomplish control must be many, if all interests are to be considered with fairness. The result of Georgia's departure in a new direction for the protection of its cattle interests by interstate regulation will be awaited with much interest by this Division.

We render service in the way of obtaining laboratory diagnosis as to the presence of the bacillus abortus in animals. There have been received this year 150 samples of blood for this diagnosis. They were taken from animals on 10 different farms. Of these samples, 62 were diagnosed as positive, these 62 coming from 7 different farms.

Contagious Diseases of Poultry.—In previous reports no reference has been made to the several diseases of a contagious nature which affect poultry. In many instances they are the cause of severe losses and in emergencies of this kind poultrymen have frequently sought advice at the Agricultural College. Their departments of veterinary science and of poultry husbandry in connection with the extension service and by means of county agents and farm bureau officials, have done a large amount of work in the way of diagnoses, advice and suggestion, which has been of great relief in many trying situations.

We note this year a greatly increased interest on the part of veterinarians in the subject of poultry diseases, and especially those of a contagious nature. Fitted as they are by technical training and experience to intelligently deal with diseased conditions affecting animal life, their developing interest in this field of veterinary practice will undoubtedly result in the prevention and control of contagious disease which now decimates many flocks.

The stimulation of this interest in the subject of poultry diseases was primarily due to the matter being taken up in conference between officials of the Department of Veterinary Science and Pathology of the Massachusetts Agricultural College, the Director of Extension Service, the Massachusetts Veterinary Association and the Director of Animal Industry. Several conferences were held, and a series of lectures on Avian pathology was finally arranged under the auspices of the above mentioned officials and institutions. Great credit is due the several individuals who arranged for these lectures by prominent men connected with the College and Extension Service and others from outside the State — all prominent in their line of work. Intense interest was developed and shown by the attendance of some fifty veterinarians at the lectures.

We believe that eventually a co-operative service by all agencies will be established of great value to the poultry industry, and with relief in many instances where none has hitherto been available.

The Division will order quarantine restrictions in all reported cases where they seem to be indicated.

Other Infectious Diseases.—The finding of tuberculosis in swine at time of slaughter often means the presence of that disease in cattle on the same premises. Inspectors of slaughtering occasionally bring to our attention cases of swine tuberculosis, and we immediately examine all members of the herd of cattle for evidence of the disease. Only two cases have been reported this year from two different towns, but in our opinion many inspectors neglect their duty in this direction.

Among rare cases of infectious disease reported are two of nodular disease in sheep and one of adeno-carcinoma in a cow.

LABORATORY SERVICE

A very important auxiliary to the work of this Division is the laboratory service rendered by the bacteriological laboratory of the Department of Public Health. Positive diagnosis of disease depends in many instances on the result of laboratory examination, and there are many cases also in which laboratory confirmation of a clinical diagnosis made in the field is very desirable.

In the control of rabies it is absolutely necessary in a great majority of the cases to have laboratory examination made of the brain of the animal suspected of the

disease, or of the one known to have been exposed to it, but which exhibits no clinical symptoms. This procedure is especially important if persons have been bitten by the suspected or exposed animals.

During the year the brains of 282 dogs, 8 cats and 2 cows have been examined in the laboratory for diagnosis as to the presence of rabies infection. This number is a reduction from last year of 125 examinations, which reduction is concurrent with a lowering prevalence of the disease this year.

In the control of glanders the laboratory examination of samples of blood taken from horses suspected of or exposed to this disease is found necessary. Complement-fixation tests of 90 blood samples have been made this year.

In addition to the above, 20 specimens have been examined taken from animals suspected of the following diseases: anthrax, 1; tuberculosis, 6; actinomycosis, 5; nodular disease, 2; foot-and-mouth, 1; hemorrhagic septicemia, 5.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

Under the provisions of section 19, chapter 129 of the General Laws, an order was issued by the Director on January 15, 1924, to every inspector of animals in the cities and towns of the Commonwealth calling for an inspection of all cattle, sheep and swine and of the premises where kept.

This order called for the completion of the inspection by March 1, and for a report of the same to be promptly forwarded to the Division's office. The inspectors' reports came forward in most instances in good season and were duly examined and tabulated in minute detail.

These reports first of all constitute a "census" of the cattle, sheep and swine on the 29,519 farms or premises in the State where these species of animals are kept. From these reports the following interesting facts are gathered:—

The number of cattle of all kinds has decreased from the 1923 record of 232,090 to 219,042 — a decrease of 13,048 head which is approximately five and two-thirds per cent. In two years the decrease has been 18,144 head, which might cause some concern were it shown that the number of cows used for dairying had decreased in the same ratio.

The decrease in dairy cows, however, since the annual inspection of 1923 was made has been 5,784, but their present number — 162,577 — is still somewhat above the average computed from the records of a long period of years. It is to be regretted, however, that our number of dairy animals has not more nearly kept pace with a rapidly increasing population.

The number of swine recorded on the farms of the State at the time of the latest annual inspection shows that the gradual yearly decrease in numbers which has been shown during the past five years has not continued, but that according to inspectors' reports a total increase of about 700 head over last year's number has been found.

The number reported by local inspectors of animals in the Spring months of this year is 63,465, which is far below normal, but until market conditions improve to a considerable degree the raising of this species as an industry will undoubtedly remain at a low development.

The number of sheep found on the farms of the State still declines though at a much less rapid rate than formerly. Last year 11,633 were recorded by inspectors of animals, which number declined to 10,706 this year, a decrease of 927.

Referring to the service of local inspectors of animals in their annual examination of all cattle, sheep and swine, and the premises on which they are kept, it should be said that in the great majority of towns and cities the work has been thoroughly and faithfully attended to. It has happened that in a few towns the work has not been of a character to be commended and reports of the inspection have been very much delayed, no report being received this year from one town. It will probably be necessary, therefore, for the Director to exercise the coming year his prerogative of disapproval of the renomination of such inspectors as have not rendered satisfactory service.

Prompt and faithful service by a capable inspector of animals is of great protective value to the livestock industry of his community, and is a public health auxiliary of great importance. We find that in some communities this service is not compensated for to anywhere near its value, and in many places poor remun-

eration of this official operates to lower the standard which we would like to have maintained.

In accordance with our annual custom, meetings of local town and city inspectors were called in November for conference with Division officials.

The meetings were held in Greenfield, Pittsfield, Springfield, Worcester and Boston, and a fairly large number of inspectors attended. Matters of mutual interest to the local inspectors and the office of the Division were discussed, with satisfactory results in the way of clearing up many points of the service not well understood by the local inspectors. Bovine tuberculosis, its eradication by physical examination and by the application of the tuberculin test, was the principal subject of discussion — as usual — but the service of the inspector in the control of rabies was also one of the prominent subjects of interest.

District veterinarians have made 403 visits to premises where unsanitary conditions were reported by local inspectors, and which they had failed to induce owners to correct.

REPORTS OF RENDERING COMPANIES

Section 154 of chapter 111 of the General Laws requires rendering companies to report to this Division every animal received by them which is found to be infected with a contagious disease, and the information thus furnished is of value in bringing to the attention of the Division occasional cases of these diseases which otherwise would not be known.

Fourteen reports covering 16 cases of contagious diseases were received from rendering companies, 3 of which had not been otherwise recorded.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 126, Acts of 1924,	\$3,500 00
Expended during the year for the salary of the Director	\$3,500 00
Appropriation for personal services of clerks and stenographers, chapter 126, Acts of 1924	\$9,300 00
Expended during the year for the following purposes:—	
Personal services of clerks and stenographers	\$8,996 05
Extra clerical and stenographic service	23 30
	<hr/>
Total expenditure	\$9,019 35
Unexpended balance	280 65
	<hr/>
Appropriation for services, other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 126, Acts of 1924	\$9,300 00
Expended during the year for the following purposes:—	
Books and maps	\$88 41
Express and messenger service	361 78
Postage	602 43
Printing report	69 99
Other printing	693 68
Telephone and telegrams	620 01
Stationery and office supplies	912 39
Expenses of the Director	180 35
	<hr/>
Total expenditure	\$3,529 04
Unexpended balance	1,170 96
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Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 126, Acts of 1924	\$4,700 00
Brought forward from 1923 appropriation	20 00
	<hr/>
Total amount appropriated	\$43,200 00

Expended during the year for the following purposes:—	
Services of regular agents	\$32,935 00
Services of per diem agents	5,938 00
Labor hired	104 00
 Total expenditure	 \$38,977 00
Unexpended balance	4,923 00
	\$43,900 00
Appropriation for the traveling expenses of veterinarians and agents, chapter 126, Acts of 1924	\$18,000 00
Brought forward from 1923 appropriation	29 00
Transferred from Appropriation for Extraordinary Expenses	276 25
 Total amount appropriated	 \$18,305 25
Expended during the year for the following purposes:—	
Traveling expenses of regular agents	\$15,984 65
Traveling expenses of per diem agents	2,320 60
 Total expenditure	 \$18,305 25
Appropriation for reimbursement of owners of cattle and horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services, and for laboratory and veterinary supplies and equipment, chapter 126, Acts of 1924	\$8,400 00
Expended during the year for the following purposes:—	
34 head of cattle condemned and killed on account of tuberculosis in 1920, 1921, 1922, 1923, 1924, paid for in 1924	\$958 50
6 horses condemned and killed on account of glanders	300 00
Supplies for veterinary inspectors	207 31
Laundry	363 77
Antiseptics, biologics and disinfectants	210 26
Thermometers, needles, syringes, etc.	201 17
Ear-tags, punches, chains, etc.	2,708 55
Expenses of killing and burial	180 00
Expenses of travel allowed inspectors of animals	607 67
Quarantine expenses	41 00
Rent of halls for inspectors' meetings	29 50
Sundries	48 00
 Total expenditure	 \$5,855 73
Unexpended balance	2,544 27
	\$8,400 00
Appropriation for reimbursement of owners of certain cattle killed in accordance with agreements made under authority of chapter 353, Acts of 1922 and chapter 304, Acts of 1924	\$100,000 00
Brought forward from 1923 appropriation	44,275 46
Transferred from Appropriation for Extraordinary Expenses	15,117 75
 Total amount appropriated	 \$159,393 21
Expended during the year for the following:—	
6,730 head of cattle killed in 1923 and 1924 (chapter 353, Acts of 1922)	\$158,383 21
42 head of cattle killed (chapter 304, Acts of 1924)	1,010 00
 Total expenditure	 \$159,393 21

Appropriated, under the Appropriation for Extraordinary Expenses to pay one-half the cost of the destruction of hay shipped from the quarantined "foot-and-mouth disease" territory of California into Massachusetts	\$1,500 00
Total expenditure	\$1,411 58
Unexpended balance	88 42

	\$1,500 00
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The average amount paid for condemned tuberculous cattle for the year is \$24.52.

One hundred and sixty-nine claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$1,225.

One hundred and six unpaid claims covering 739 cattle, to which provisions of chapter 353, Acts of 1922, apply, remain unpaid, amounting to \$22,297.74.

There has been received during the year from the sale of hides and carcasses of condemned animals \$7.22.

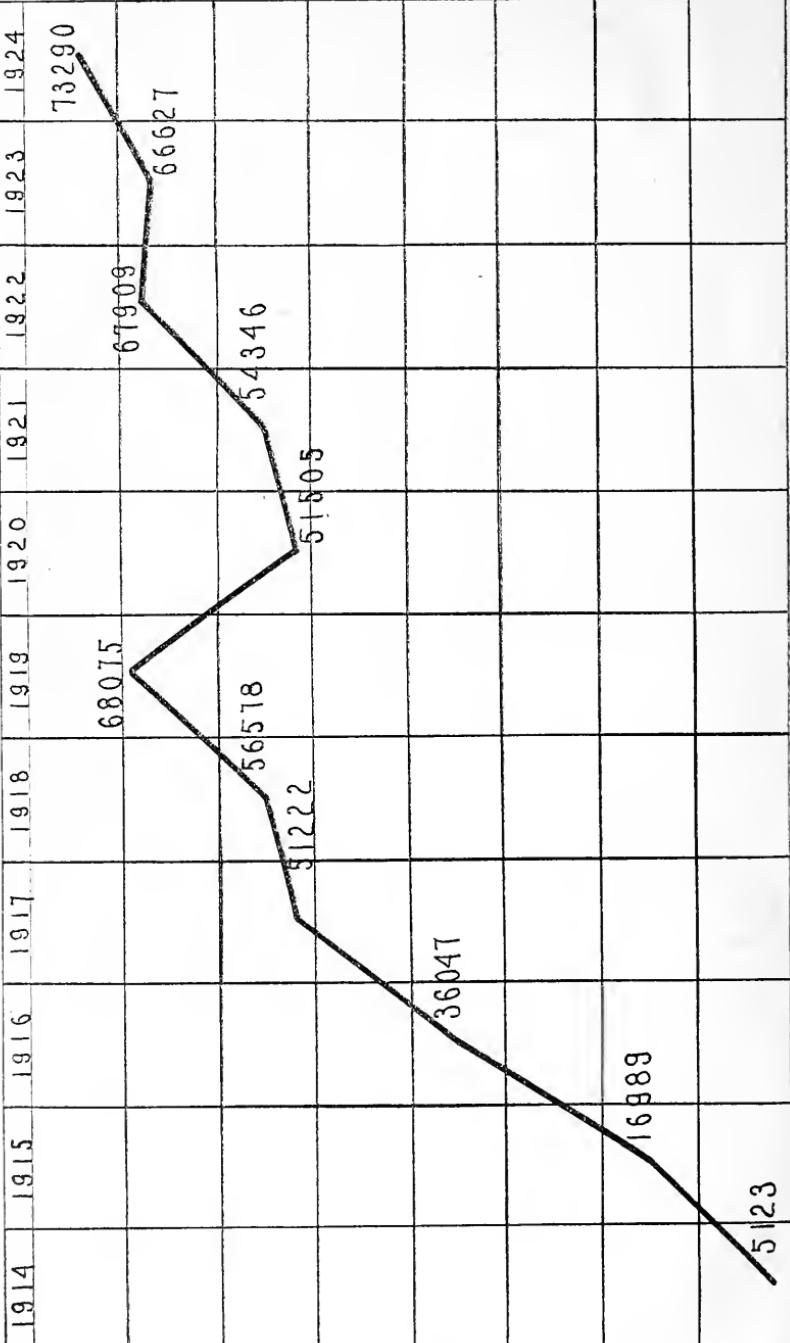
Respectfully submitted,

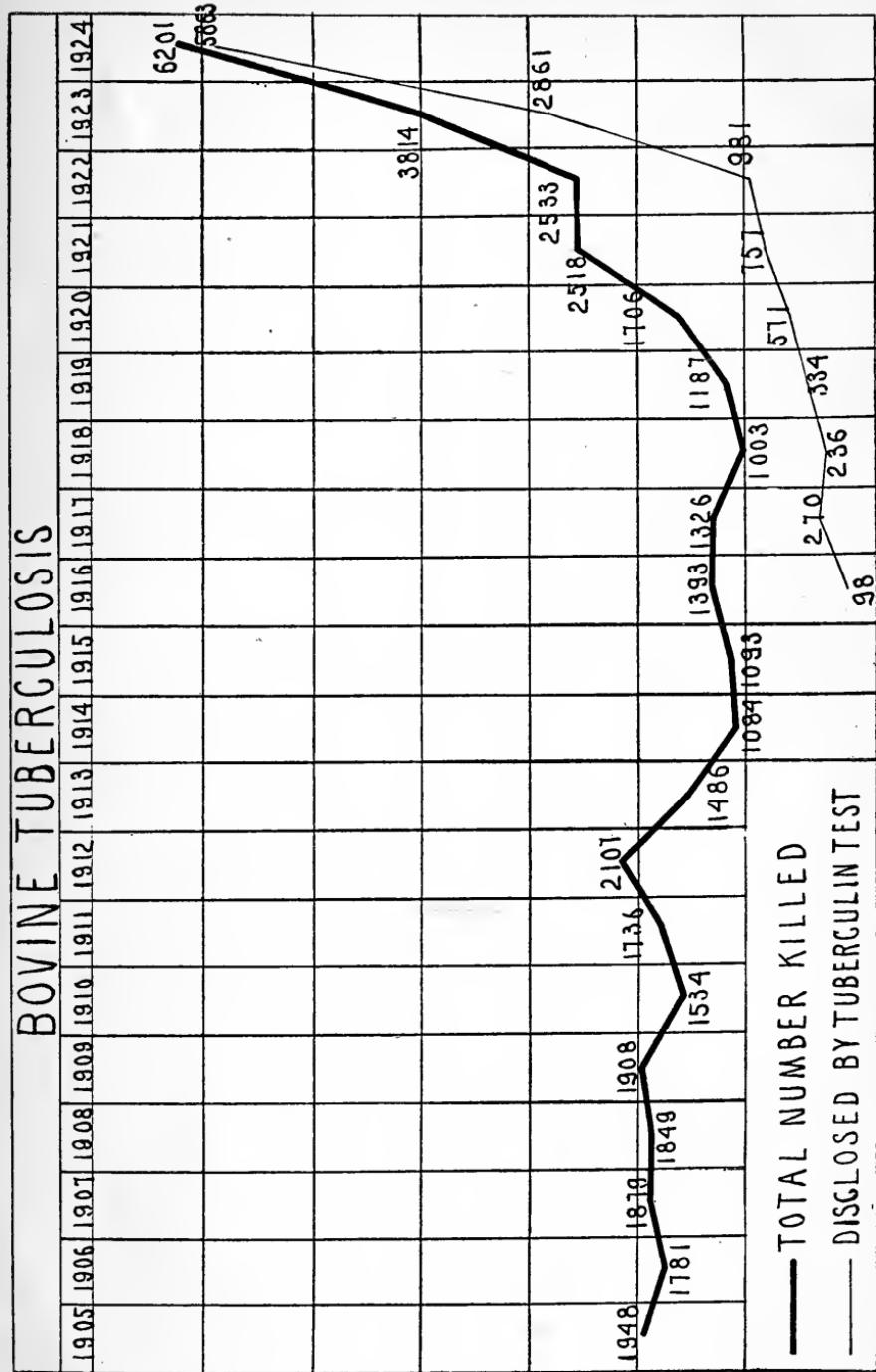
LESTER H. HOWARD, *Director.*

APPENDIX

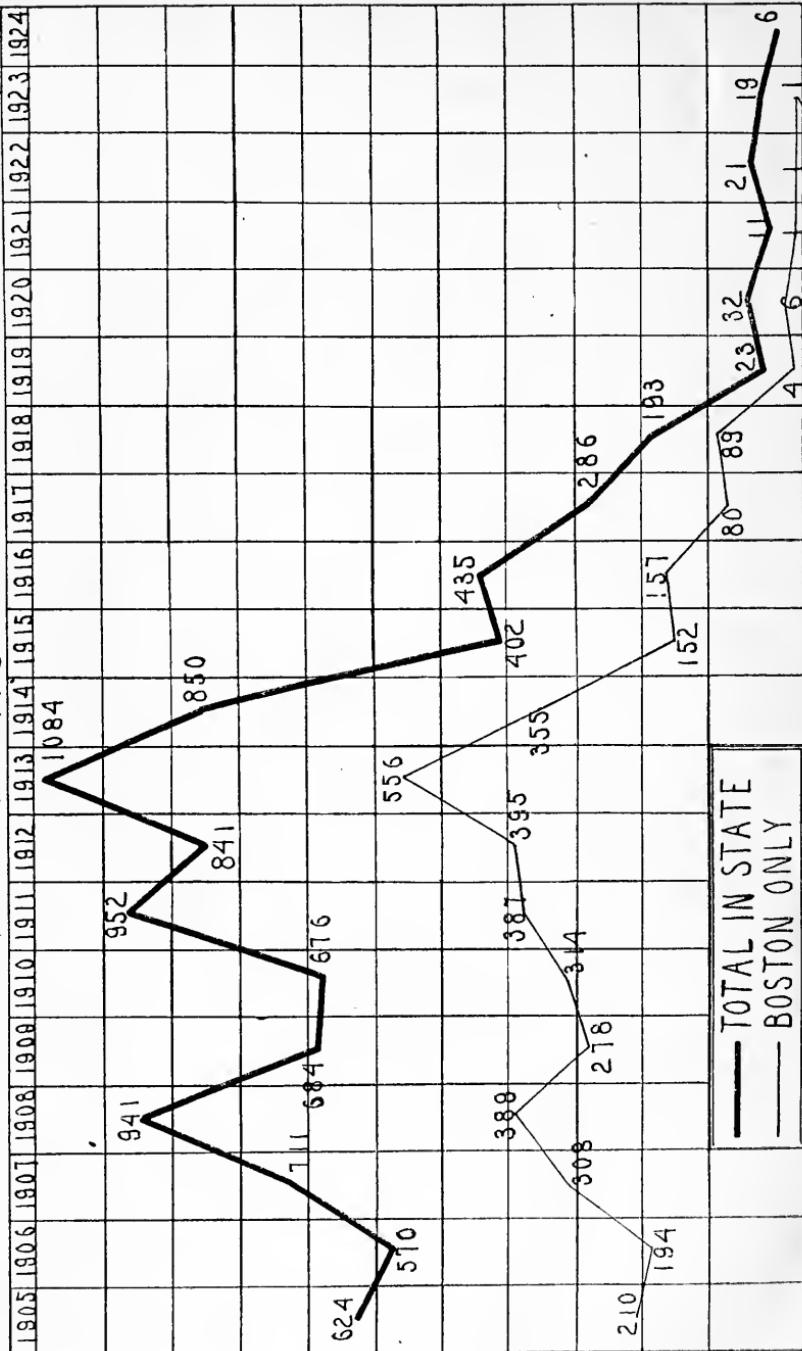
The following graphs show the work of the Division of Animal Industry in control of the principal contagious diseases of animals for a period of years.

HOG CHOLERA CONTROL - INOCULATIONS -

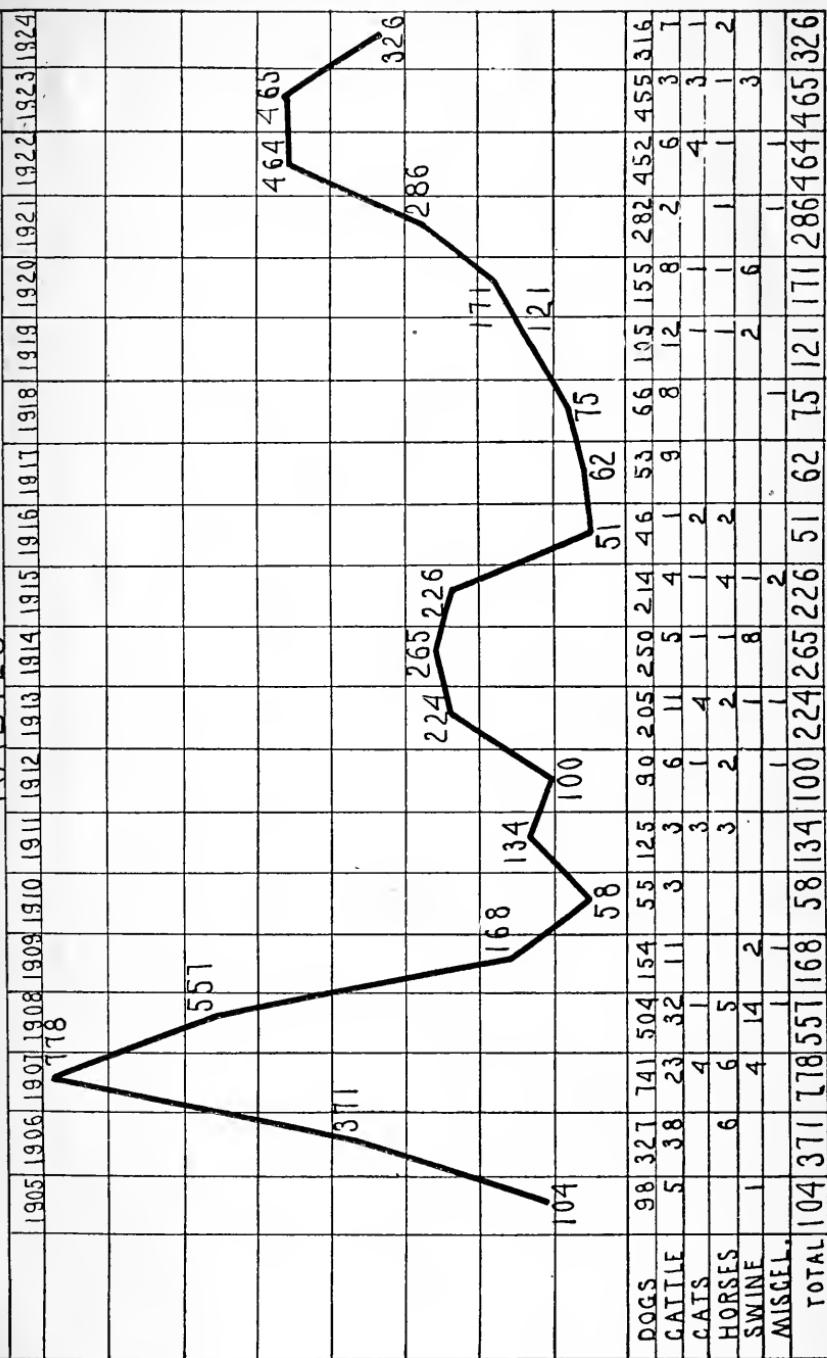


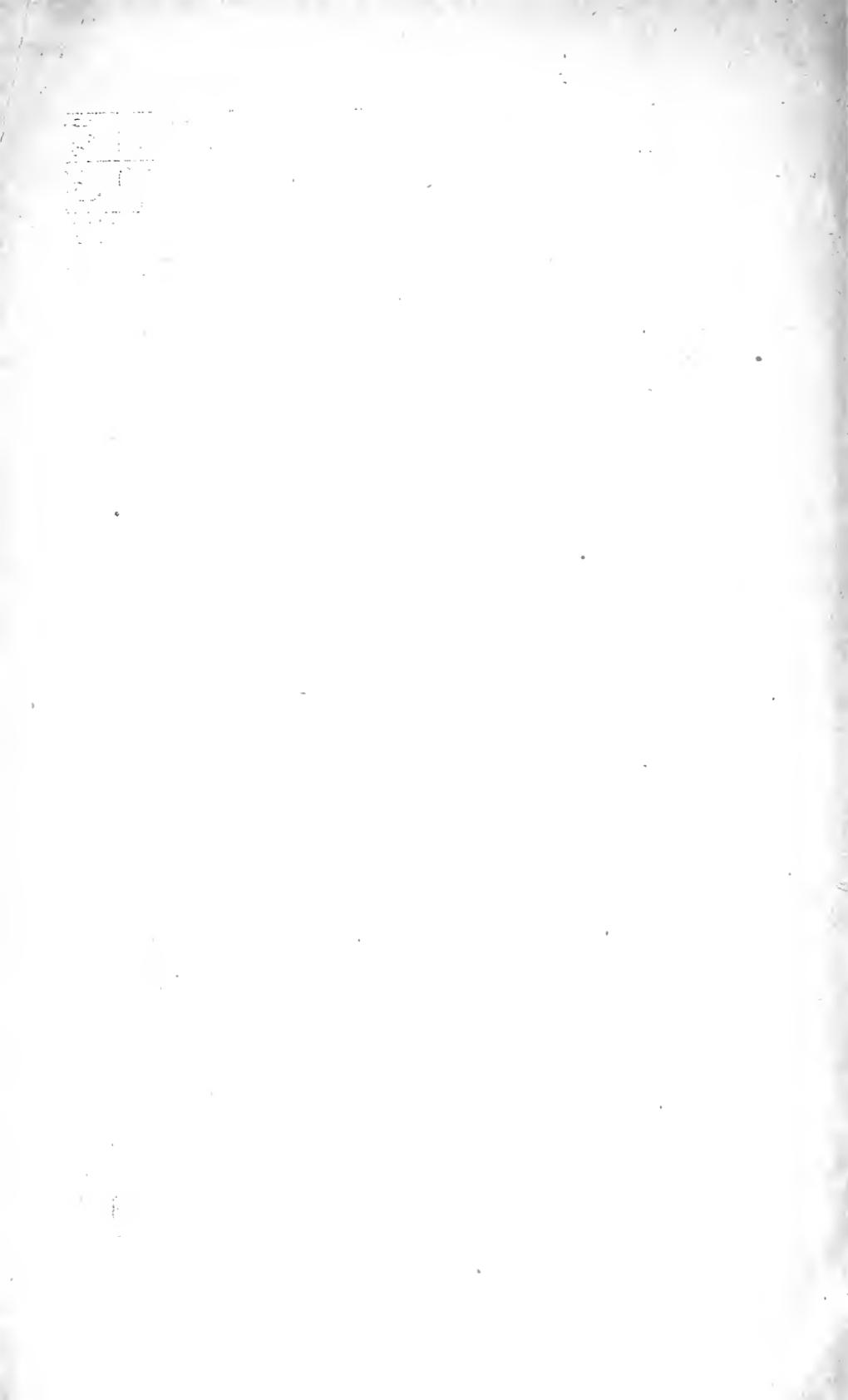


GLANDERS



RABIES





The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1925

DEPARTMENT OF CONSERVATION



MASS.
DOCS.
COLL.

The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY,
BOSTON, NOVEMBER 30, 1925.

To the Commissioner of Conservation.

I have the honor to present the following report of the work of this Division for the year ending November 30, 1925.

The Division of Animal Industry has for its duty under the law the "Control and Eradication of Contagious Diseases of Animals."

Measures in *prevention* of contagious disease should however receive *first* consideration as were such 100% successful, control and eradication measures would not be called for.

While such an ideal situation can not be foreseen in the near future veterinary science recognizes that its outstanding progress at the present day is in that direction along with the other branches of medical science and at quite as rapid a pace.

The Division of Animal Industry therefore attempts first of all to prevent outbreaks of contagious disease among our livestock, and in that way assist in maintaining them in a condition of health. Such condition means that they are a source of revenue to their owners and at the same time there results a true conservation of that portion of the public food supply which is derived from their products while living and from their carcasses after slaughter.

The quantity, quality and nutritive value of this food is also found to be in direct ratio to the health of the animals which have produced it.

Large quantities and standard quality of the products of bovine animals form the basis of successful dairying, and for good volume and high quality *healthy* animals are a first necessity. Neither propagation in sufficient numbers nor satisfactory development to maturity or to the point where their products become a source of revenue can be expected from animals affected with any form of contagious disease.

In addition to the importance of healthy animals as a source of food the importance of the relation of animal disease to the public health should be referred to. Animal disease is sometimes found to be the source of contagion affecting the human subject, — tuberculosis, glanders, rabies, anthrax and many other bacterial diseases of animals are readily communicated to man and while they are fortunately of comparatively rare occurrence in man their high mortality rate calls attention to the importance of controlling these maladies at their most common source and if possible of eradicating them from the animal kingdom.

The most important work of the Division during the year has been the tuberculin testing of cattle at the request of their owners under the provisions of Chapter 353, Acts of 1922. The number of tests applied has largely increased due in part to a gradual growth of public opinion in favor of the work and in part to the increasing number of local health boards which have put into effect regulations calling for the tuberculin testing of all cattle whose products enter the local milk supply in a raw state. The progressive cattle owner who desires to maintain a healthy herd recognizes the present opportunity the Commonwealth offers him to eradicate tuberculosis under favorable conditions, and the unthinking milk producer who is influenced only by health regulations finds his business jeopardized unless he can show that his herd of cattle is under official supervision. A large proportion of the increase in our work of testing this year has been in herds of the latter class, and as additional municipalities put similar rules into effect the volume of our tuberculin testing will proportionately increase. We now have on file a large number of requests for this service which are being attended to as rapidly as our force of veterinarians can make possible, and if sufficient appropriations are provided by the incoming legislature for travel expense and for the payment of indemnities for cattle which react to the tuberculin test we expect our service to be in greater demand than at any time since the work was started.

The prevalence of rabies is at all times a condition which calls for prompt atten-

tion on the part of this Division. Although somewhat reduced from the record of recent years it is still a situation of dire importance calling for strict regulatory measures. The lax enforcement of the dog laws and the lack of co-operation on the part of the public in ordinary preventive measures are often the cause of serious outbreaks of the disease, or make their control a much more serious problem.

The prevention of contagious diseases of swine constitutes quite an important part of the work of the Division, and has increased largely during the year just closed. While our recommendations to swine owners are for them to call for our service before sickness appears in their herds so that the animals may be given the present day successful immunization against disease, nevertheless it often occurs that they wait until too late for preventive treatment to be successful.

Hog Cholera, Hemorrhagic Septicemia and various mixed infections are the contagious diseases prevalent in this species and for the control of which our service is rendered.

The regular continuous duties of inspection of horses, cattle, sheep and swine and of the sanitary conditions under which they are kept, execution of measures in prevention, cure or control of contagious diseases among all the several species of domestic animals, and the condemnation and slaughter when necessary of such as are affected with certain forms of such diseases, followed by supervision of the burial or other disposal of their carcasses, have been attended to promptly and in accordance with the methods found by many years' experience to be most effective.

The enforcement of regulations applying to the transportation of animals from other states to Massachusetts is another important duty of this Division, as by these methods we make sure that no prevalence of contagious disease shall be caused by the entry of infected animals. Mallein testing of horses from certain states in which glanders has extensively prevailed, and tuberculin testing of dairy or breeding cattle shipped from other states and not accompanied by satisfactory records of tuberculin test, are continuous activities calling for prompt determination of actual health conditions at time of entry. Although Federal regulations now require that all cattle of whatever age shipped from one state to another for any purpose except immediate slaughter shall have passed a tuberculin test applied by an approved veterinarian before the shipment takes place, and we ordinarily depend on this regulation being complied with by cattle shippers, yet we find that many cases of violation occur either intentionally or through ignorance of the existence of any regulatory measures of the United States government applying to this class of interstate commerce. In such instances official action becomes immediately necessary in protection of the livestock interests of the state, and all animals involved are immediately inspected and tuberculin tested. Failure to pass inspection and test requires condemnation and killing, without indemnity to owner unless post-mortem examination discloses no evidence of disease.

Following is a gross summary of the Division's work for the year ending November 30, 1925:—

GENERAL SUMMARY

CATTLE

7,696 Massachusetts cattle were physically examined by inspectors.

451 Massachusetts cattle were tuberculin tested by Division veterinarians at Brighton stockyards.

41,288 tuberculin tests of Massachusetts cattle were made by Federal and State veterinarians in co-operation.

1,561 interstate cattle were tuberculin tested by Division veterinarians.

11,725 tested interstate cattle were examined at Brighton and their test records viséed.

8,571 tested interstate cattle were inspected and identified at other points.

763 animals on 86 farms in 39 towns were given preventive treatment against blackleg.

23 animals were given preventive treatment against anthrax.

148 animals were given preventive treatment against hemorrhagic septicemia.

188 visits to unsanitary premises were made by district veterinarians.

HORSES

121 tests for glanders were made by Division veterinarians.

1,266 interstate horses were examined by inspectors.

4 tests of whole stables were made by Division veterinarians.

DOGS

1,642 cases of possible rabies in animals were investigated.

SWINE

84,976 head of swine were treated in prevention or cure of hog cholera.

24,990 head of swine were treated in prevention or cure of hemorrhagic septicemia.

MISCELLANEOUS DISEASES

189 cases of miscellaneous diseases were investigated by Division veterinarians.

BOVINE TUBERCULOSIS

The Division has continued the past year the policies formulated under the provisions of Chapter 353, Acts of 1922, referring to the tuberculin testing of cattle under State supervision and Chapter 304, Acts of 1924, referring to the payment for cattle condemned and killed on account of physical symptoms of tuberculosis. The Board of Health regulations of a number of cities and towns requiring that raw milk offered for sale in such cities and towns must come from cattle which have been given an official tuberculin test have resulted in a considerable increase in the number of requests received by this Division for application of the tuberculin test, many owners of herds having been given the choice of submitting their herds to test, pasteurizing the milk or discontinuing in the dairy business. The increased demand for tuberculin tested cattle to replace reacting cattle in such herds has resulted in requests for tests from many persons dealing in cattle. These facts have caused a considerable increase in the percentage of cattle which have reacted to the first or original test applied under our supervision.

Co-operation under the so-called "Accredited Tuberculosis-free Herd" plan by the Federal Bureau of Animal Industry continues to prove an important factor in inducing owners of cattle to submit their herds for test, as the additional amount paid by the Federal government is an aid in lessening the monetary loss to the owner of reacting cattle. The Federal allotment became exhausted early in the year, however, which resulted in a natural slowing up in the number of requests for test received, the effects of which were felt until a new allotment was made available by the Federal government at the beginning of their fiscal year, July 1st.

An increase in the number of cattle condemned on physical symptoms from 338 in the year ending November 30, 1924, to 597 in the year ending November 30, 1925, is undoubtedly due to the fact that it has become more generally known that the law allowing reimbursement for such animals, which law was repealed in 1922, had been re-enacted and is now in effect. In cases of this kind the veterinarian under whose direction the animal is condemned is required to make a careful physical examination of all cattle on the premises. The premises must then be satisfactorily disinfected before payment is made by the Commonwealth. Three months from date of condemnation, the Inspector of Animals of the town in which the case occurred is requested to make a careful physical examination of such cattle as may then be on the premises. These precautionary measures often result in locating and condemning other infected animals and through disinfection limiting the spread of the contagion.

The testing of cattle under the provisions of Chapter 353, Acts of 1922, is in accordance with said chapter, done only on request of the cattle owner and only under agreement with him that he will comply with the rules and regulations made to govern such testing, which rules and regulations refer to the disposition of reacting cattle, the cleansing and disinfection of the premises and the class of animals which may be added to the herd.

Following is the year's record of tuberculin tests: —

Total number of herds tested: 2,093.

Total number of cattle tested: 41,288 (purebreds 14,750, grades 26,538): passed the test, 33,024: reacted, 8,264: percentage of reactions: 20.

First test, 882 herds, 13,792 cattle: passed, 7,508: reacted, 6,284: percentage of reactions: 45.5.

Second test, 505 herds, 6,765 cattle: passed, 5,878: reacted, 887: percentage of reactions: 13.1.

Third test, 530 herds, 14,919 cattle: passed, 13,895: reacted, 1,024: percentage of reactions: 6.8.

Tests made of 176 herds comprising 5,812 cattle previously accredited and due for retest, showed only 69 reactors, *i.e.*, one and seventeen hundredths per cent.

The tabulation above shows an increase in the testing over that of the year ending November 30, 1924, of 710 herd tests, 11,114 animals tested and 2,639 reactions to the test, and an increase of percentage of reactions from 31 per cent found to the first test in 1923 to 40.2 per cent in 1924, and 45.5 per cent this year, the cause of this increase in reactions being due to the character of the herds submitted as stated previously. The increase in the percentage of reactions found to the second, third and subsequent tests is believed to be due to lack of care by the owner in the selection of cattle purchased to replace reactors.

The percentage of reacting cattle is found in purebreds to be 8.86 per cent while in grades it is 22.44 per cent, due undoubtedly to the fact that owing to the higher cost of purebred animals, more care has been taken in selecting and purchasing them.

On November 30th there were on our records 376 herds containing 8,105 head of cattle the owners of which had received "accredited" herd certificates issued by the Federal government. In addition to this figure there were 527 herds containing 5,777 head of cattle which had passed one test without a reaction and 187 herds containing 1,002 head of cattle which had passed two clean tests making a total of 1,090 herds in which no reacting cattle were found at last test, which herds contained 14,884 head of cattle. Our records indicate that on this date there are under supervision 1,716 herds, which is 6 per cent of the herds of cattle in the State and 26,646 head of cattle, or 13 per cent of the cattle in the State.

Interstate Cattle

In order that the health status of all bovine animals brought into Massachusetts from other States may be known to the Division and become a matter of record in its office, it is required (Department Order No. 35) that such animals shall be accompanied by a permit issued by the Director. This regulation is very generally observed with the result that the Division has information of interstate shipments and their destination, and calls upon the local inspectors for reports of arrival and for identification. An occasional violation of the regulation occurs, sometimes due to misinformation and in a few instances to wilful non-observance of all regulatory action by officials. Investigation in all cases of violation is immediately instigated.

Federal regulations applying to the shipment of dairy or breeding cattle from one State to another now require that all animals of that class of whatever age shall have passed a recent tuberculin test before the shipment takes place, an exception to this regulation being that animals from "accredited tuberculosis-free" herds may be shipped interstate without additional test.

These Federal regulations relieve us to a large extent of the former necessity of applying the tuberculin test to the majority of cattle arriving within the State, and consequently this branch of our work has been very much diminished since this Federal regulation became operative.

The legislature of 1924 passed a new law applying to cattle shipped to Massachusetts to be used for dairy purposes. Whereas, formerly they could be shipped without test to premises designated by the United States Department of Agriculture as "public stockyards" and there quarantined and tuberculin tested, the new Massachusetts law requires that they shall be inspected before shipment to this State, and passed as healthy by either a Federal or State veterinarian. The word "inspected" in this law is interpreted to mean tuberculin tested.

Our inspectors stationed at the Brighton stockyards which premises are classified by the Federal Department of Agriculture as "public stockyards" are thus relieved of a certain amount of tuberculin testing. It is necessary, however, to visé the records accompanying these cattle and identify the animals as the ones recorded; so we are not relieved to any great extent of the inspection service maintained for many years at this point. We still find it advisable to occasionally apply check tests on cattle shipped as "passed the test" to make sure that the efficiency of the testing is up to the proper standard and that dishonesty or misrepresentation has not been practiced.

A small number of cattle arrive each week unaccompanied by satisfactory records of tuberculin test and these are subjected to a test or retest and then released for sale or slaughter in accordance with the results obtained.

During the year 13,247 interstate dairy cattle have been received at Brighton, either shipped thereto direct or through the receiving station at Somerville where the animals are under the same quarantine regulations as at the main yards at Brighton. Of these 3,973 were from New Hampshire, 6,084 from Maine, 2,840 from Vermont, 319 (including 4 held over from 1924) from New York, 2 from Rhode Island, 24 from Ohio and 9 from Connecticut. Of the total number received 11,725 were released for sale on approved records of tuberculin test, and 1,522 were held for test by State and Federal officials, the reactors being slaughtered.

At other points in the State there have been received 8,571 dairy or breeding cattle from other States, all tuberculin tested either before shipment or immediately after arrival in cases where interstate regulations have not been complied with through ignorance or wilful intent.

The total number of dairy or breeding cattle received from other States at all points in Massachusetts shows a grand total of 21,818 — an increase of 4,688 over 1924.

CONTAGIOUS DISEASES OF SWINE

Hog Cholera. — The wisdom of directing attention to *prevention* of contagious diseases of live stock rather than *cure* is best shown by the results obtained in the treatment of swine in their protection against the ravages of hog cholera. Thousands of animals are saved each year by the so-called simultaneous treatment, the efficiency of which has long been established and is in general use wherever swine raising is an industry of importance. Before the development by the Federal Bureau of Animal Industry of a successful preventive of this disease the production of pork in large quantities was often unprofitable because of the visitation of hog cholera with its high mortality rate — in many instances when an outbreak occurred its prevalence ceased only when no animals survived.

The herds fed on garbage were particularly subject to these outbreaks because of the facility with which infection was brought to them by garbage material. Now, however, it is readily possible to immunize swine against this danger and the utilization of garbage — a cheap food containing all the elements of nutrition — is safe and has developed into an industry of no small proportions — to say nothing of the advantage it offers as a solution of the problem which confronts many communities regarding the disposal of household food waste.

There can be no doubt of the great economic value of the work of the Division in the prevention of contagious diseases of swine. It is a work of real conservation of resources — when we are able to prevent the ravages of this one principal disease only (hog cholera) we are doing much to increase that portion of the food supply which is produced within the State and at the same time are helping to maintain an industry on a profitable basis.

While it is contended by some that free service in the latter direction by agents of the Commonwealth is wrong in principle, yet from the viewpoint of the necessity of control of contagious diseases among animals, as a work of real conservation of material resources, it would seem to be justified.

It may be, however, that having taken up this work some years ago when it was not commanding any attention from swine owners or veterinarians, having supervised it by official control as deemed necessary at that time, having demonstrated the way it can be successfully accomplished, and finally having educated the swine owner as to its value to him in a business way, it is now relevant to discuss the

question of the State no longer furnishing free service or of retiring altogether from the actual field work, and depending on private veterinarians to do it under State control or supervision.

While hog cholera is the most disastrous of swine diseases and our work in its prevention is perhaps of more importance than in the treatment of other contagious diseases of that species, yet the occurrence of other infections in which our services are frequently sought is a matter of no small importance to the swine raiser.

Being called to immunize a herd of swine against hog cholera we frequently find some other condition as the cause of trouble and which in some instances co-exists with cholera.

The skill of a trained field veterinarian is often put to a severe test in differentiating between two diseases somewhat alike in their exhibition of symptoms, and if multiple infections are found, to determine which of them is the primary cause, and then use his knowledge — gained only by experience — to map out a combination treatment which will be effective in reducing the mortalities. Our veterinarians, many of whom have been engaged in this branch of our work for several years, have become very expert as diagnosticians and are rendering service which seems to be effective in control of disease and at the same time very satisfactory to swine owners. There is no other work in our Division in which correct diagnosis, arrived at promptly, means more to successful outcome of treatment than in the control of contagious diseases of swine.

During this year there have been 84,976 treatments applied to swine in the prevention or cure of hog cholera, an increase of 11,686 treatments over those applied in the previous year. The animals comprised 657 herds varying in size from one pig only to some exceeding 4,000 in number. These herds were located in 182 cities and towns and required the making of 1,918 visits by one or more field veterinarians.

Attention is directed to a graph in the appendix to this report showing the number of treatments applied year by year since the work was begun, and showing also that the present year has been our busiest one in this direction.

Hemorrhagic Septicemia in Swine. — This disease commonly called "swine plague" commands considerable attention on the part of our field veterinarians, although its treatment by private veterinarians is not in any way restricted by department order as in cases of hog cholera.

On the outbreak of *any* contagious disease in a herd of swine the owner always fears hog cholera and accordingly applies for the Division's service. It is in this way that our field veterinarians generally come in contact with cases of hemorrhagic septicemia, finding it prevailing as a separate infection or co-existent with hog cholera or other swine diseases. It ranks next in importance to hog cholera as a cause of death and demands the same careful observation when attempting positive diagnosis.

Its treatment in prevention or cure has rapidly developed and this branch of our work the past year has been greatly increased. It may be said that owing to the further development of biological treatment of this infection results are now eminently satisfactory.

Our records show that 24,990 treatments have been applied this year.

RABIES

One of the most important branches of the work carried on by the Division of Animal Industry is the control of rabies.

We are glad to record that the decline from the high point of prevalence in 1922 and 1923 has continued this year. We have had 22 per cent fewer cases than in 1924 and the decline in the past two years amounts to 45 per cent.

In 1922 the general prevalence of rabies in Massachusetts had gradually increased from the year 1918, progressively spreading from one community to another, sometimes disappearing from one section of the State only to be found breaking out in another, so that the total number of cases recorded in the State as a whole remained at a high point. In 1922, however, the disease seemed to have arrived at the peak of its prevalence; it remained nearly stationary during 1923, and as above stated has declined rapidly in 1924 and 1925. We confidently expect a still further improvement of the situation this coming year.

As is well known the disease prevails mostly among dogs, but all species of domesticated animals are susceptible to it and may become infected under certain circumstances of exposure. Each year our records show a relatively small number of cattle, horses, swine and cats which have received the infection. Undoubtedly many species of wild animals are from time to time subjects of the disease, which fact escapes notice except in very rare instances. They are probably a factor in the continuing existence of this infection as dogs frequently come in contact with them.

The disease is readily transmissible to the human subject by the bite of an animal carrying the infection and therefore there exists an important public health phase of the problem of control and eradication.

Close co-operation is sought by the Division with State and Municipal health and police departments and with medical and veterinary practitioners who are brought into connection with positive cases of the disease or with persons or animals exposed thereto. Where such co-operation can be completely established, control of an outbreak of rabies in any community is a matter of a short time only.

Unfortunately however it often happens that the complete enlistment of all these agencies fails, and the disease prevails for a more or less protracted period in consequence.

If the dog laws now on the statute books were completely enforced in all sections of the State the prevalence of rabies could be brought down to an almost negligible point. Were there a general compliance even with the licensing law the number of dogs would be greatly reduced because stray, ownerless and unlicensed ones would be impounded and disposed of.

Unfortunately however the license law is practically ignored in many towns and cities or is only spasmodically enforced when an outbreak of rabies appears. The infection has then been established and a certain number of cases generally follows.

Selectmen, mayors and boards of aldermen have the authority to issue orders calling for the muzzling or restraining of the dogs in their municipalities whenever the same seems to be necessary. In the excitement attending a fresh outbreak of this disease, when public opinion is acutely alive to the dangers of the situation, such orders are deemed necessary and are at first generally well observed by the dog owners and well enforced by the police authorities. As soon, however, as the first excitement has subsided, we find that in many instances there is no observance of them by the public, no enforcement by the authorities, and conditions relax to the same level of non-attention as in case of the State laws regarding licensing.

Referring to the rabies situation in general there seems to be some promise of relief in the effective results now being obtained by the preventive inoculation of dogs against the disease. By the use of the Pasteur treatment it has been possible for some years to prevent development of the disease in persons who have been bitten by rabid animals, and the development of the preventive treatment for animals has now been brought to a degree of perfection where its results are comparable with those of the Pasteur treatment of the human subject.

Owners of dogs may now have their animals completely immunized against the disease so that even if exposed by the bite of a rabid animal development of the disease seldom takes place.

Dogs which have been exposed to a positive case of rabies are ordinarily quarantined for a period of 90 days, but if owners have them immunized we deem it safe to release them from quarantine when 21 days have elapsed following the completion of the treatment if no symptoms of rabies have developed during that time.

One town this year, through its Board of Health, provided free inoculation of all licensed dogs against rabies. We believe that if this plan were generally adopted and became country wide in its application, and were the license laws strictly enforced at the same time, rabies would cease to be the menace it now is to all species of domesticated animals and through them to the general public.

During the year ending November 30, 1925, 1,520 animals were reported to the Division for diagnosis, observation or quarantine on account of the prevalence of rabies, and 122 reported cases were brought forward from the year 1924. Of these 1,642 animals, 242 dogs, 5 cattle, 1 cat and 1 hog proved to be positive cases. Diagnoses were made either by clinical symptoms, or laboratory examination of brains, supplemented in many instances by the inoculation of small animals.

Comparing these statistics with our records of the year 1924 we find that there

have been 77 fewer positive cases this year. This reduction in one year of approximately 22 per cent and in two years of 45 per cent in the number of positive cases augurs well for a still further decline in prevalence in 1926.

The Division received reports during the year of 970 persons who had been bitten by dogs, 11 persons who were bitten by cats and 1 bitten by a monkey. In all cases reported of persons bitten, the local inspector of animals of the town or city where the animal is owned or kept is ordered to make an examination of the animal, and, even if it appears to be healthy, to have it quarantined for a period of 14 days for observation. This is a measure directly in protection of the public health. If by any chance the biting animal is affected with rabies at the time the bite is inflicted, unmistakable clinical symptoms of the disease will probably appear before the end of the quarantine period, and in such cases the bitten persons will have definite knowledge of that fact and will seek medical advice. If at the end of the 14-day period animals which are quarantined on account of biting persons have not developed symptoms of rabies, they are released from quarantine.

The majority of the animals which inflicted bites on 982 persons as above recorded were released at the end of the quarantine period showing no symptoms of rabies.

Of the 1,642 animals reported for observation 67 dogs and 1 cat were — as far as could be ascertained — ownerless, and the dogs unlicensed, and 16 of these ownerless dogs proved to be positive cases of rabies.

GLANDERS

The prevalence of this disease during the past year has remained at the same low plane recorded for the past seven years — only eight positive cases having been found — one each in the cities of Boston, Worcester, Springfield, Chicopee and Chelsea, two in the town of Bellingham, and one in Dracut. These widely separated locations of individual cases indicate that no common source of the disease is present and therefore that proper control measures in each location will probably keep its prevalence at the same low plane in the immediate future.

We believe that the majority of the cases which we are now finding are of a latent character, as only three of the eight cases recorded this year showed symptoms of the acute form of the disease, the remaining cases being diagnosed by mallein tests or laboratory examination of blood samples.

Latent cases may exist for a long time without the animals exhibiting symptoms which would be looked upon as suspicious, and in the meantime they might or might not become a source of contagion to others. Some of the post-mortem examinations made indicated the infection to be of long standing — possibly dating from the time when glanders was so very prevalent years ago in many sections.

The mallein testing of all stable mates, and contact animals when a positive case has been found in recent years has undoubtedly disclosed many of these latent cases and that way has been a most potent factor in the record of extermination. However, glanders was so rampant for many years that there are probably yet to be found occasionally cases which have carried the infection for a long time and which will exhibit suspicious symptoms only when circumstances of age, environment, work or lack of care furnish the influence which causes such symptoms to appear.

The practical extermination of glanders has been due first of all to the use of modern methods of diagnosis, including in such the mallein testing of all horses exposed to the disease such as the stable mates of all positive cases; the closing of public watering troughs in towns and cities where cases have occurred has been another very potent factor in limiting the extension of local outbreaks; the decreasing number of horses now used for commercial purposes, and their better working conditions are also factors in the improving situation. The horse's work-day has been shortened and he has been largely relieved by the motor truck of the heart-breaking long hauls of heavy loads which formerly were his task. The efforts of various organizations having his welfare as their principal object have done much to educate his caretaker to an understanding of his needs and to a realization of his greater usefulness if well fed, comfortably stabled, and properly cared for. All of these are influences of value in the control and eradication of disease of any kind in any species of live stock.

The horse is still a necessity in many lines of commercial trade, and on the average New England farm he is still the economic power. He and his near relative, the mule, are indispensable in military operations, and as means of healthful recreation and pleasure the horse is in much greater demand than at any time for many years. Note his continuing importance as a drawing card at all animal expositions where the different types, draft, coach, saddle or speed, still receive genuine attention of interest.

Another and one of the most important uses of the horse today and in which he is well-nigh indispensable is in the manufacture of various biological preparations, and this materially increases the demand for healthy horses for their manufacture. Horses must therefore still be produced in considerable numbers and maintained free from contagious disease.

There were 26 horses reported during the year as suspected of glanders, of which number 7 proved to be positive cases of the disease. Horses in any way associated with these positive cases and classified as "contacts"—23 in number—were mallein tested, 1 positive case being found, making a total number of 8 positive cases for the year.

Of these 8 cases, 3 were condemned on clinical examination, and diagnoses in the remaining 5 cases were arrived at either by use of the ophthalmic mallein test or by laboratory examination of blood samples submitted to the complement-fixation test.

Forty-one of the total of reported and contact cases were released from observation as not diseased.

The laboratory work in this branch of the service is quite necessary and very important, and this year has consisted of the complement-fixation test of 40 samples of blood taken from 40 horses, for the purpose of diagnosis.

Ophthalmic mallein tests to the number of 45 have been applied to 43 horses owned in the State permanently, and 36 tests to 35 horses recently arrived from other States, a total of 81 tests to 78 animals. The results of these tests were 4 positive, 77 negative.

Under present regulations (Department Order No. 36) horses shipped to Massachusetts from New York, New Jersey, Rhode Island and Connecticut must be accompanied by a permit of the Director of Animal Industry. From these States there has been reported the arrival of 1,776 horses. Excepting those brought in illegally they have been mallein tested on arrival unless accompanied by an approved record of test, or shown to be horses of the better class, which ordinarily do not become exposed to the disease.

Many of the animals from these States are of the better class referred to, used for carriage work, breeding, racing or exhibition purposes, and many of them are brought to the State for the summer season only. These of the better class do not require special attention on our part, but second-hand horses, trafficked in and sent from the markets of one State to those of another for public sale, have been specially watched on account of their being considered more liable to be subjects of contagious disease.

A graph in the appendix to this report shows at a glance the decreasing prevalence of glanders for the past thirteen years and indicates that we may reasonably expect complete eradication of it in the near future. On account of its communicability to the human subject with fatal termination in all cases the work of its control and eradication in animals is quite important from a public health standpoint.

MISCELLANEOUS DISEASES

Anthrax. — Only one positive case of anthrax in animals has been reported this year, that occurring in Worcester County. The source of this outbreak was probably the use for bedding of certain animal waste products from a foreign country where the disease exists more or less continuously. By prompt application of preventive inoculation to the exposed animals no additional deaths occurred.

While we have been very fortunate in recent years in our freedom from outbreaks of this disease we are not unmindful of the great damage an outbreak may cause, and often before control measures can be set in motion. The course of the disease is generally very rapid, often ending in the death of the animal attacked before a diagnosis can be made, or even before centralized control authorities can be notified.

Frequently the first incident to which attention is called is the finding of a dead animal in stable or pasture with no cause of death apparent and no history of any animal having shown symptoms of sickness of any kind. Before the true nature of the trouble can be determined the exposure of many other animals may have taken place, some of which may succumb on account of the high virulence and rapid course generally prevailing in a sudden outbreak.

Unless carcasses are promptly buried the infection may be carried in numberless ways to surrounding territory and a serious prevalence occur.

The anthrax bacillus and its spore formations are extremely resistant to conditions which ordinarily destroy germ life, and remain potent for a long time — often for many years — living in the soil and ready to infect any susceptible creature which may come in contact with them. It therefore happens that places where it has existed at any time may remain infected and subsequent outbreaks may occur even after the lapse of years. Consequently, following a positive diagnosis of anthrax it becomes necessary to at once put in operation preventive measures against its future occurrence. Deep burial or burning of infected carcasses and material with which they have been in contact, disinfection of buildings, the burning over of surface ground where carcasses are buried or over which they may have been dragged, the protective inoculation of all exposed animals and those which afterwards are to be stabled or pastured on the same premises, and a thorough investigation as to possible sources of the original outbreak are the control measures which have generally been found to be effective, and to which our present favorable situation is undoubtedly due.

On several farms which have been previously infected we take the precaution to annually treat all susceptible animals with anti-anthrax serum and spore vaccine. An occasional death from the treatment occurs, but very infrequently, and the majority of the animals are given absolute protection against the infection.

We have one horse barn in the central part of the State which has remained infected with anthrax for several years, in spite of as thorough application of disinfectants as can be devised. This building is therefore permanently quarantined and no animals are allowed to occupy it except those previously immunized against the disease.

The communicability of anthrax to the human subject is well recognized, more or less danger existing to those whose occupations require the handling of hides and wool which may have been taken from infected carcasses of cattle or sheep. The Division's work in control of this disease has therefore a public health relation of considerable importance.

Preventive treatment was applied to 23 cattle this year.

Blackleg. — This disease, otherwise designated as "symptomatic anthrax," is one to which much that has been said in our reference to anthrax will apply, especially its sudden development, high mortality rate, resistant powers of its causative organisms, and the precautions necessary to prevent its spread. It generally develops, however, only during the pasture season and affects only the young cattle. It is unusual to find a case in an animal over two and one-half or three years of age, adult animals for some reason not being susceptible except in very rare instances.

Preventive treatment is also available and is completely successful in nearly all cases if applied before infection has taken place. This protection is considered to be effective for a period of one year at least. We have many farms in the State where blackleg has existed at one time or another, and we recommend that all the young cattle on these places be given the protective treatment, the best time for it being just before the cattle are turned out to pasture in the Spring. This service is furnished free and we find it quite generally availed of, especially in those sections where the disease has at any time prevailed.

On the occurrence of an outbreak we advise as a precaution the immediate removal of all susceptible animals from the pasture in which the disease has developed, and their treatment in prevention of the disease.

During the year 763 animals have been given protective treatment on 86 farms located in 39 different towns. Four deaths have been reported in untreated animals on farms located in 2 different towns.

The same general recommendations as in anthrax outbreaks, as to disposal of infected carcasses by burning or deep burial, are applicable following occurrence of this disease.

Actinomycosis. — A few cases of this disease are recorded every year and are generally disposed of by slaughter without reimbursement to the owner. If a case is not serious we allow the owner to have it treated by a private veterinarian, and in some cases allow the animals to be held for fattening purposes, under quarantine restrictions, to be released only for slaughter.

There have been 15 cases reported this year distributed in twelve different towns. Of these, 12 have been slaughtered, 1 has recovered and been released from quarantine and 2 proved to be cases of other diseases.

Hemorrhagic Septicemia in Cattle. — This disease, although of great importance in some sections of the country, is not found to be prevalent in this State. The cases which do occur are usually of the septicemic type, which develops very rapidly, often resembling anthrax in many of its aspects. A diagnosis usually depends on laboratory examination of material taken from the carcasses of cattle in which sudden deaths occur and in which the character of the symptoms exhibited indicate contagion of some nature.

It is found that the spread of this disease can be prevented by immediate removal of contact animals to other premises and their treatment by preventive methods. Our efforts are usually confined to saying other members of the herd in which the infection has been found, affected animals ordinarily dying before a diagnosis can be made.

Our records show that outbreaks of this disease have occurred in 8 towns this year, in which 25 deaths occurred. Preventive treatment was applied to 148 head of cattle.

Mange. — Scabies or "mange" affecting horses, cattle or sheep, although less prevalent than in former years, demands quarantine measures when brought to our attention. Removal of affected animals, except for immediate slaughter, is forbidden. By the use of proper remedies excellent results in the destruction of the parasites are often obtained, and when the infested animals are found to be cured the quarantine is lifted. There have been 98 cases of mange in cattle reported this year on 15 premises in 11 towns.

Foot-and-Mouth Disease. — The prevalence of foot-and-mouth disease in the States of California and Texas which occurred in the year 1924 was apparently exterminated. One new outbreak was reported in the State of Texas during the year 1925 and is thought to be eradicated. It is now believed, therefore, that the disease does not exist in the United States. All reports resembling in any manner foot-and-mouth disease are immediately investigated by this Division.

Bovine Infectious Abortion. — This disease, which is found to occur in practically every section of the country, is at present given a great deal of study by investigators in veterinary science.

No action has as yet been taken by this State relative to issuing regulatory measures to prevent the spread of this infection owing to the difficulties which would naturally attend the enforcement of such regulations.

Laboratory service to aid in diagnosis as to the presence of bacillus abortus in animals is offered to veterinarians, cattle owners and other persons interested. There have been received this year 89 samples of blood and one specimen of membrane for this diagnosis. They were taken from animals on 7 different farms. Of these samples 33 were diagnosed as positive, these 33 coming from 6 different farms.

Contagious Diseases of Poultry. — The quarantine measures adopted by this Division and by live-stock sanitary boards of other States have resulted in the apparent eradication of the fowl plague, an outbreak of which occurred in some sections of this country during the previous year. Quarantine restrictions during the year have been imposed on all reported cases where such action seemed necessary.

A special course in poultry diseases given under the auspices of the Department of Veterinary Science and Pathology of the Massachusetts Agricultural College at Amherst was largely attended by veterinarians of not only Massachusetts but of other neighboring States and also by the veterinarians connected with this Division.

Tuberculosis in Swine. — Tuberculosis in swine found at time of slaughter is frequently brought to the attention of this Division and is often indicative of the presence of that disease in cattle on the same premises.

Upon receipt of a report of this condition in swine steps are immediately taken to have all cattle on the premises examined for evidence of the disease. Seven cases have been reported this year from 4 different towns.

LABORATORY SERVICE

The bacteriological laboratory of the Department of Public Health renders important service to this Division in the diagnoses of diseases which in many instances require laboratory examination.

In the control of rabies it is found to be absolutely necessary to have laboratory examination made of the brains of suspected animals. This procedure is especially important in cases where persons have been bitten by the suspected animals. During the year the brains of 257 dogs, 13 cats, 3 cows and 1 hog have been examined in the laboratory for diagnosis as to the presence of rabies infection.

In the control of glanders the laboratory examination of samples of blood taken from horses suspected of or exposed to this disease is found necessary. Complement-fixation tests of 40 blood samples have been made this year.

In addition to the above, 120 specimens have been examined taken from animals suspected of the following diseases: anthrax, 8; tuberculosis, 6; actinomycosis, 1; hemorrhagic septicemia, 9; blackleg, 1; infectious abortion, 90; carcinoma, 1; and miscellaneous, 4.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

Under the provisions of Section 19, Chapter 129 of the General Laws, an order was issued by the Director on January 18, 1925, to every inspector of animals in the cities and towns of the Commonwealth calling for an inspection of all cattle, sheep and swine and of the premises where kept.

This order called for the completion of the inspection by March 1, and for a report of the same to be promptly forwarded to the Division's office. The inspectors' reports came forward in most instances in good season and were duly examined and tabulated in minute detail.

These reports first of all constitute a "census" of the cattle, sheep and swine on 28,601 farms or premises in the State where these species of animals are kept. From these reports the following interesting facts are gathered:—

The number of cattle of all kinds has decreased from the 1924 record of 219,042 to 204,163 — a decrease of 14,879 head.

The number of swine reported by local inspectors of animals in the Spring months of this year is 61,935.

The number of sheep found on the farms of the State still declines. Last year 10,706 were recorded by inspectors of animals, which number declined to 9,540 this year, a decrease of 1,166.

Owing to the prevalence of contagious diseases in poultry inspectors were instructed to inspect and report the condition and number of poultry found at time of inspection. While it is believed that this inspection was in no manner complete there were reported 1,459,888 poultry.

In accordance with our annual custom, meetings of local town and city inspectors were called in November for conference with Division officials.

The meetings were held in Greenfield, Pittsfield, Springfield, Worcester and Boston, and a fairly large number of inspectors attended. Matters of mutual interest to the local inspectors and the office of the Division were discussed, with satisfactory results in the way of clearing up many points of the service not well understood by the local inspectors. Bovine tuberculosis, its eradication by physical examination and by the application of the tuberculin test, was the principal subject of discussion — as usual — but the service of the inspector in the control of rabies was also one of the prominent subjects of interest.

District veterinarians have made 188 visits to premises where unsanitary conditions were reported by local inspectors.

REPORTS OF RENDERING COMPANIES

Section 154 of Chapter 111 of the General Laws requires rendering companies to report to this Division every animal received by them which is found to be infected with a contagious disease, and the information thus furnished is of value in bringing to the attention of the Division occasional cases of these diseases which otherwise would not be known.

Seven reports covering 8 cases of contagious diseases were received from rendering companies, 1 of which had not been otherwise recorded.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 211, Acts of 1925	\$3,500 00
Expended during the year for the salary of the Director	\$3,500 00
Appropriation for personal services of clerks and stenographers, chapter 211, Acts of 1925	\$9,300 00
Expended during the year for the following purposes:—	
Personal services of clerks and stenographers	\$9,121 58
Unexpended balance	178 42
	<hr/>
	\$9,300 00
Appropriation for services, other than personal, including the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 211, Acts of 1925	\$4,370 00
Expended during the year for the following purposes:—	
Books and maps	\$65 06
Express and messenger service	259 81
Postage	711 64
Printing report	59 34
Other printing	806 53
Telephone and telegrams (\$647.78 less \$41.42 Refunds)	606 36
Stationery and office supplies	1,253 04
Expenses of the Director	81 06
	<hr/>
Total expenditure	\$3,842 84
Unexpended balance	527 16
	<hr/>
	\$4,370 00
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 211, Acts of 1925	\$43,180 00
Expended during the year for the following purposes:—	
Services of regular agents	\$34,740 00
Services of per diem agents	7,537 50
Labor hired	124 00
	<hr/>
Total expenditure	\$42,401 50
Unexpended balance	778 50
	<hr/>
	\$43,180 00
Appropriation for the traveling expenses of veterinarians and agents, chapter 211, Acts of 1925	\$19,000 00
Transferred from Appropriation for Extraordinary Expenses	2,505 01
	<hr/>
Total amount appropriated	\$21,505 01
Expended during the year for the following purposes:—	
Traveling expenses of regular agents	\$18,079 10
Traveling expenses of per diem agents	3,424 51
	<hr/>
Total expenditure	\$21,503 61
Unexpended balance	1 40
	<hr/>
	\$21,505 01
Appropriation for reimbursement of owners of horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services, and for laboratory and veterinary supplies and equipment, chapter 211, Acts of 1925	\$5,650 00

Expended during the year for the following purposes:—					
6 horses condemned and killed on account of glanders	\$280	00			
Supplies for veterinary inspectors	197	52			
Laundry	388	74			
Antiseptics, biologics and disinfectants	207	13			
Thermometers, needles, syringes, etc.	585	72			
Ear-tags, punches, chains, etc.	3,101	83			
Expenses of killing and burial	117	00			
Expenses of travel allowed inspectors of animals	546	67			
Quarantine expenses	108	00			
Rent of halls for inspectors' meetings	2	00			
Sundries	48	00			
Total expenditure	\$5,582	61			
Unexpended balance	67	39			
Appropriation for reimbursement of owners of cattle killed as authorized by chapter 304, Acts of 1924, and chapter 129, General Laws, as amended by chapter 353, Acts of 1922, during present and previous years, chapter 211, Acts of 1925					\$200,000 00
Expended during the year for the following:—					
6,282 head of cattle killed in 1923, 1924 and 1925 (chapter 353, Acts of 1922)	\$168,168	45			
709 head of cattle killed (physical cases)	18,748	20			
Total expenditure	\$186,916	65			
Unexpended balance	13,083	35			
					\$200,000 00

The average amount paid for condemned tuberculous cattle for the year is \$23.28.

Seventy-three claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$1,025.

Two hundred and fifty-eight unpaid claims covering 2,597 cattle, to which provisions of chapter 353, Acts of 1922, apply, remain unpaid, amounting to \$68,895.34.

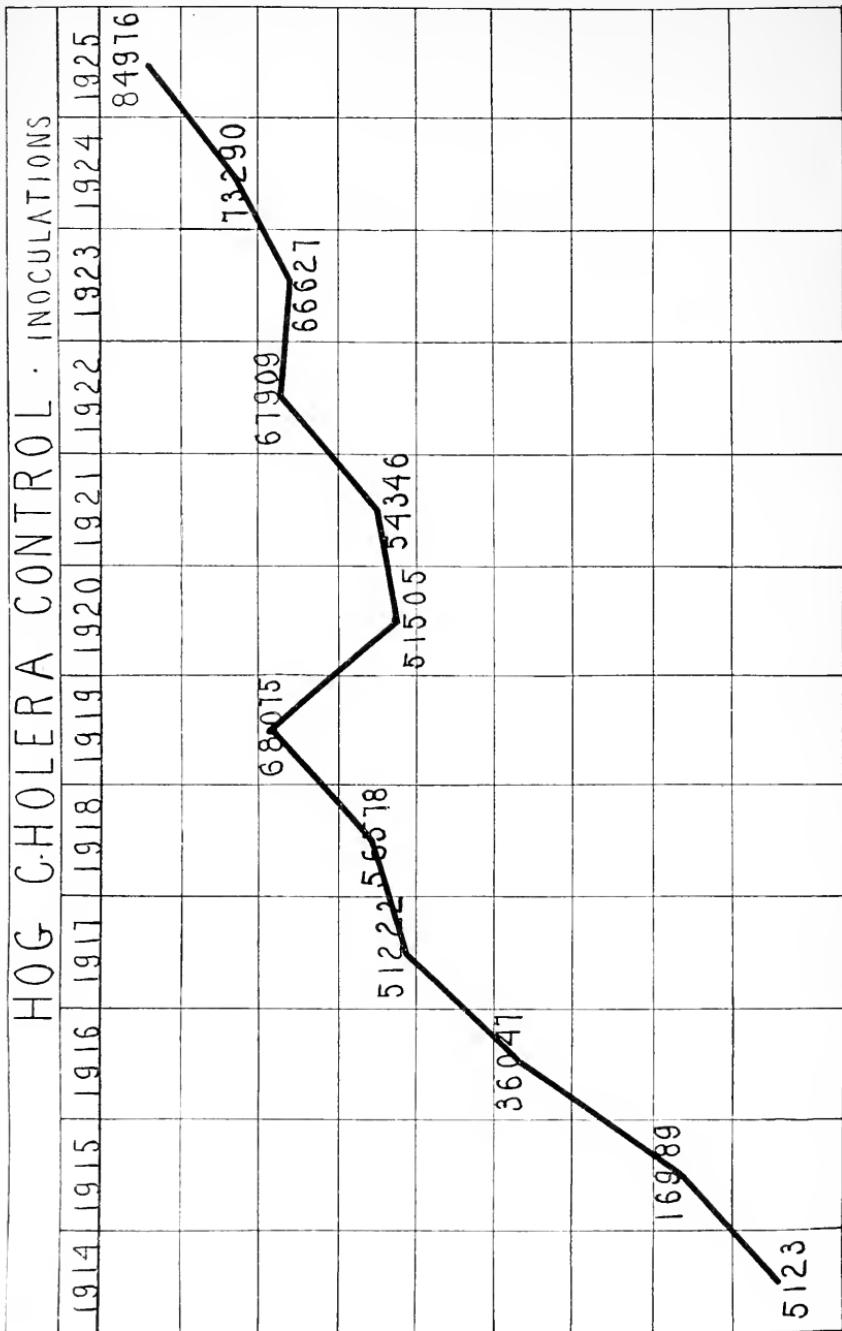
There has been received during the year from the sale of hides and carcasses of condemned animals \$10.

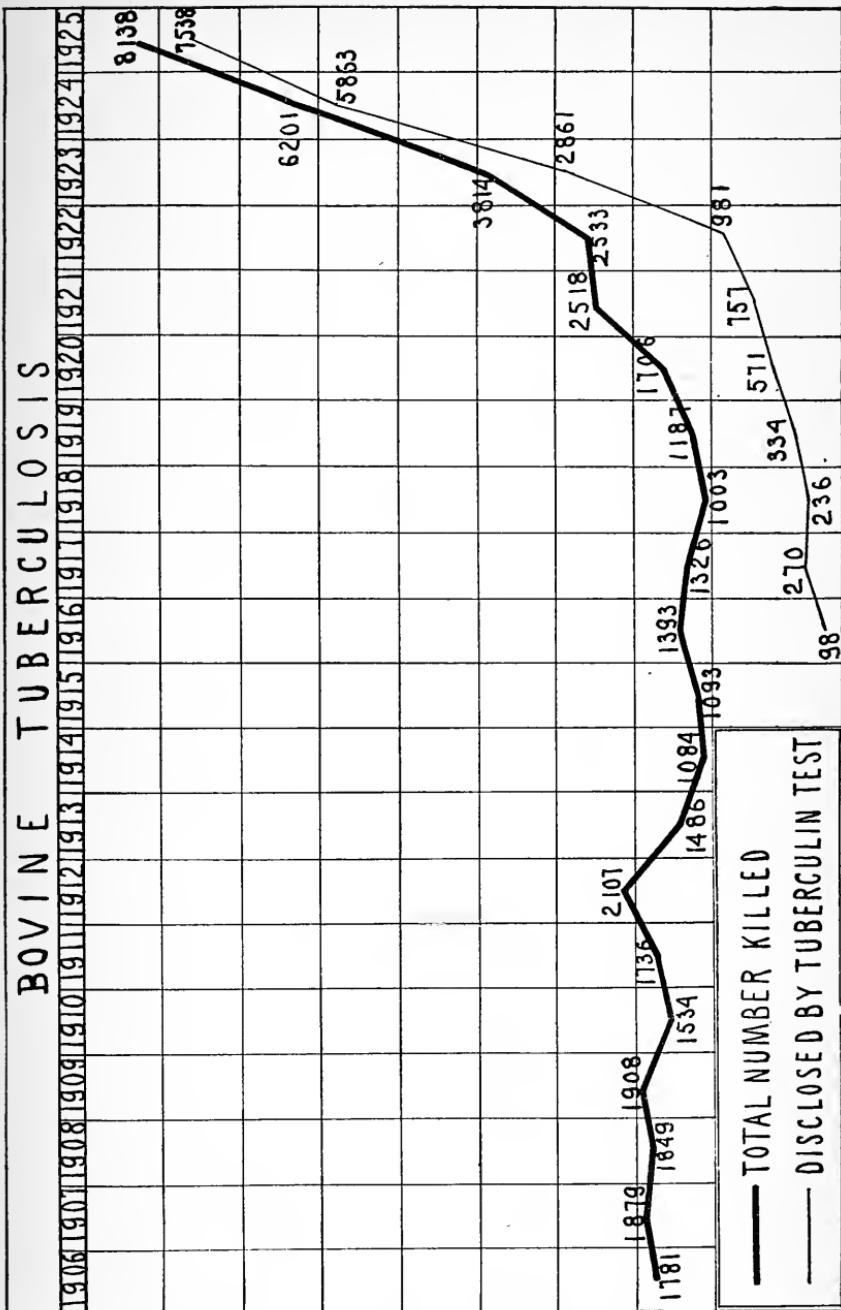
Respectfully submitted,

LESTER H. HOWARD, *Director.*

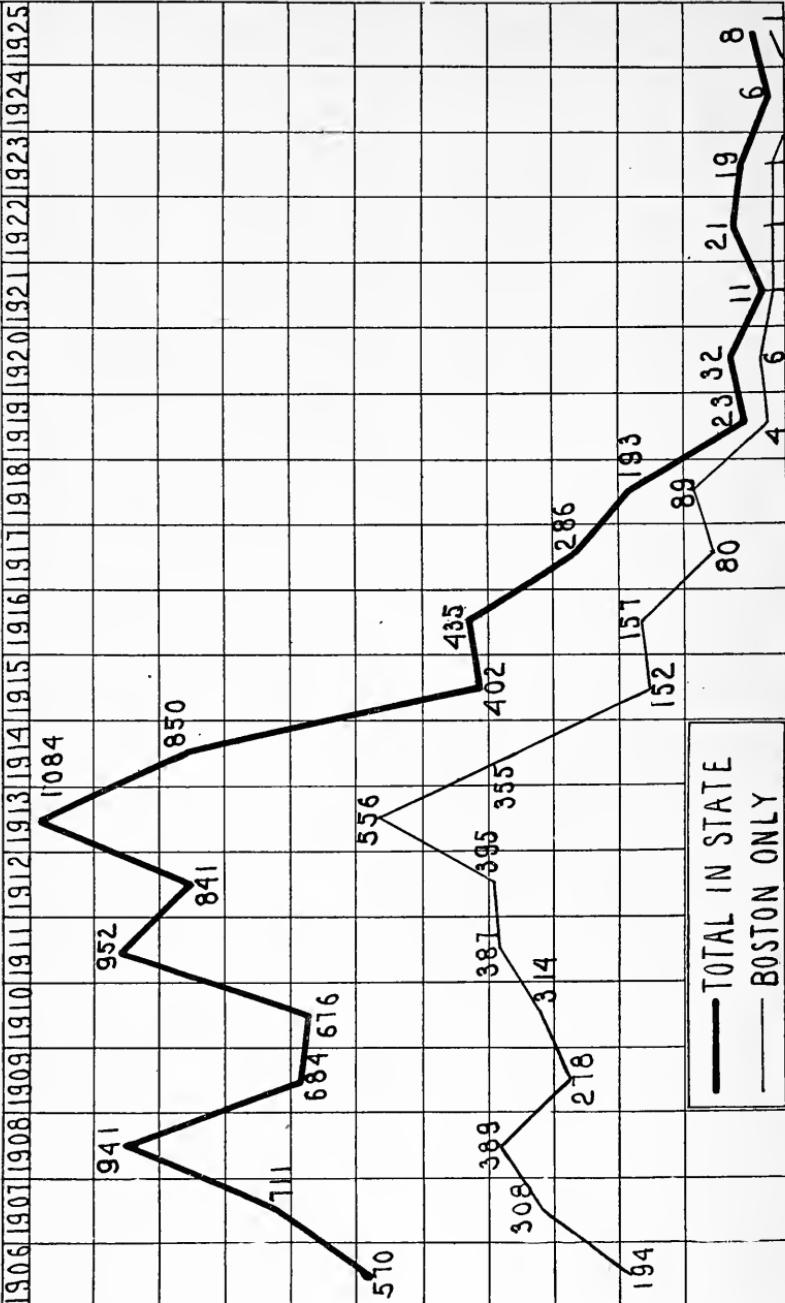
APPENDIX

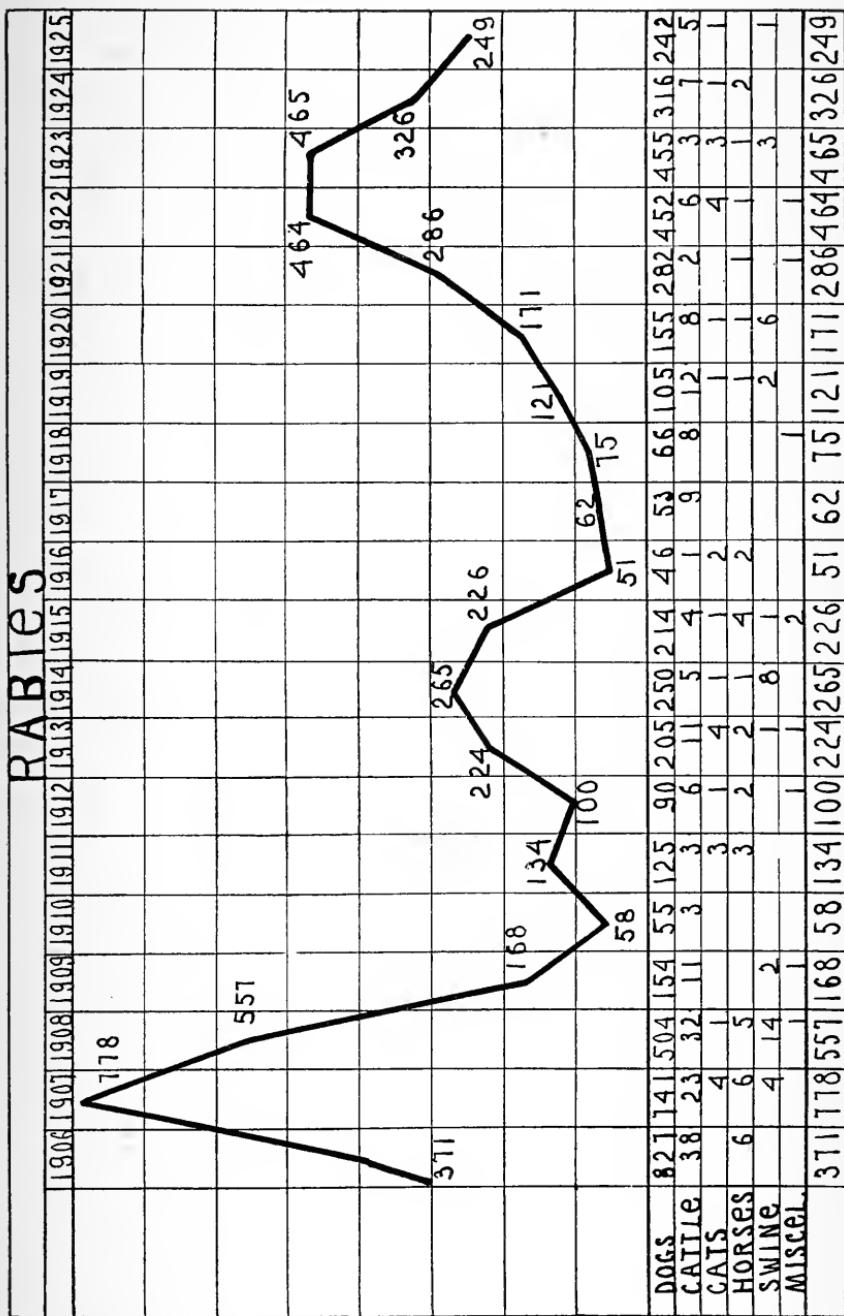
The following graphs show the work of the Division of Animal Industry in control of the principal contagious diseases of animals for a period of years.

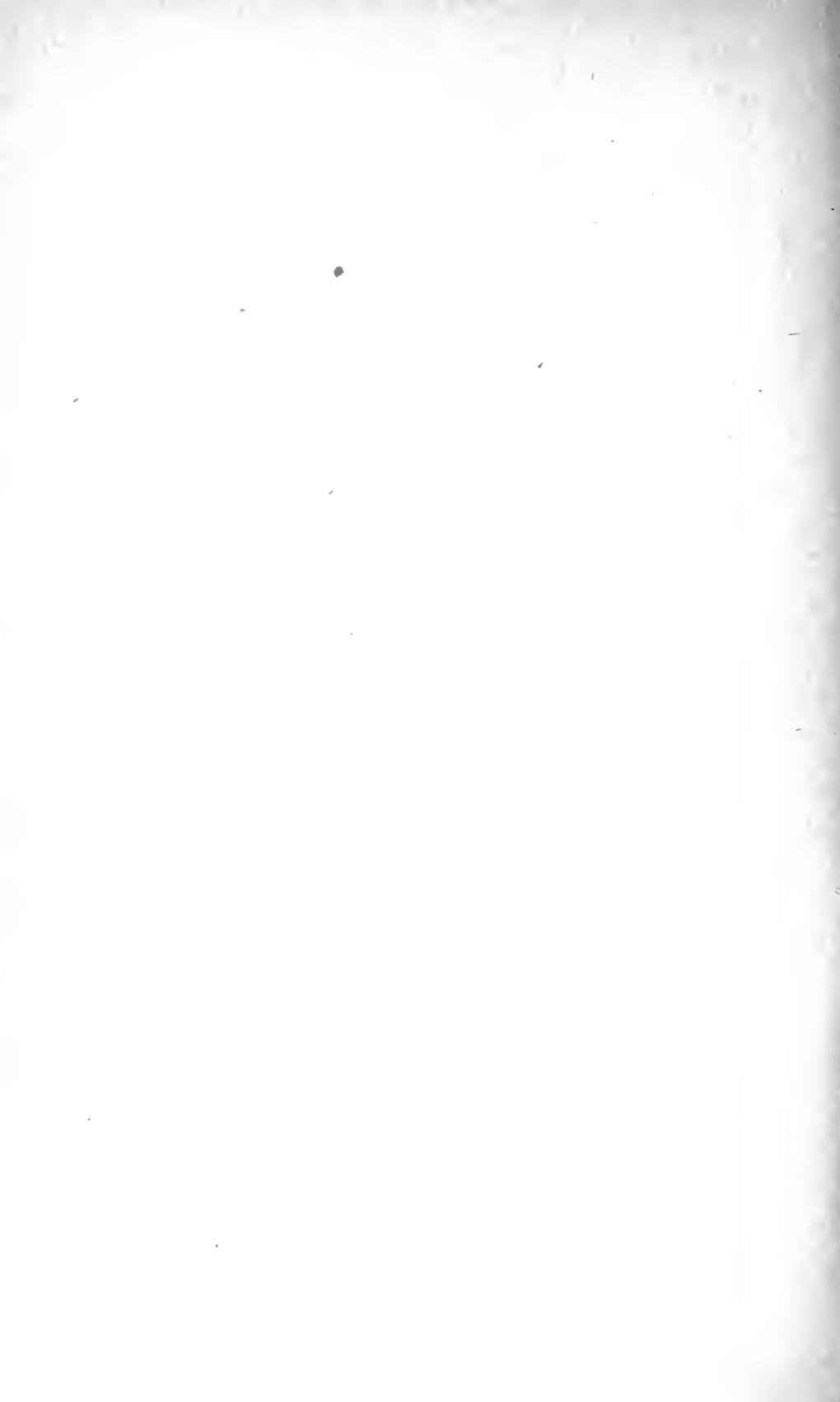




GLANDERS







The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1926

DEPARTMENT OF CONSERVATION

MASS.
DOCS.
COLL.



The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY,
BOSTON, NOVEMBER 30, 1926.

To the Commissioner of Conservation:

The following report of the work of this Division for the year ending November 30, 1926, is herewith submitted:

On October 5, 1926, Dr. Lester H. Howard, of Boston, resigned as Director after having served in that capacity since January 2, 1915. On November 6, 1926, Frank B. Cummings of Newton was appointed by the Governor and Council to succeed Dr. Howard.

The work of this Division has to do with the health of domestic animals particularly in regard to the prevention, suppression and extirpation of the several contagious diseases to which this class of animals is subject.

The activities of the Division are governed by statute either through laws passed by the General Court or by orders made by the director (Sec. 2, Chap. 129, General Laws) and approved by the Governor and Council, these orders having the force of law.

The working force of the Division is composed of:

(1) A Director — appointed by the Governor with the advice and consent of the Council for a term of three years. The Director has general charge of the Division and has authority to make and enforce reasonable orders, rules and regulations relative to the control of contagious diseases of domestic animals.

(2) Agents — in this Division there are two classes. (a) Men employed on a salary basis, i. e., devoting their full time to work of the Division. Of these agents two are classed as Chief Veterinary Inspectors, one assigned to headquarters at Boston, the other in charge of Quarantine Station at Brighton; seven as District Veterinarians having more or less direct charge of a given section of the State; four as Veterinary Inspectors with headquarters at Boston, and two as Assistant Veterinary Inspectors, laymen, one assigned to the quarantine station at Brighton, the other acting as assistant in field work. (b) Men employed on a per diem basis but under civil service regulations. These agents are mostly veterinarians engaged in private practice to whom special assignments are given when such service is required.

(3) Inspectors of Animals. Every town and city in Massachusetts is in accordance with law required to appoint annually in March one or more persons to act as inspector of animals for their respective city or town. The duty of an inspector of animals is to comply with and enforce all orders and regulations directed to them by the Director of the Division of Animal Industry and to investigate reports of suspected contagious diseases in animals.

The diseases most often demanding the attention of the Division are in the order of their frequency and importance, — tuberculosis in cattle, cholera and allied diseases in swine, rabies in dogs and other animals, glanders in horses, anthrax, black-leg and hemorrhagic septicemia in cattle, miscellaneous diseases such as mange in cattle and horses, parasitic diseases in sheep, foot-and-mouth disease in cattle, etc.

Following is a gross summary of the Division's work for the year ending November 30, 1926:

GENERAL SUMMARY

CATTLE

6,129 Massachusetts cattle physically examined by agents and inspectors.
 160 Massachusetts cattle tuberculin tested at Brighton Stockyards.
 37,675 Tuberculin tests made under provisions of Chapter 353, Acts of 1922.
 1,753 Interstate cattle tested.
 15,042 Interstate and State cattle examined at stockyards, Brighton, and their test records viséed.
 9,101 Interstate cattle identified by inspectors at other points.
 647 Animals on 72 farms in 30 towns given preventive treatment against blackleg.
 15 Animals given preventive treatment against anthrax.
 132 Preventive treatments given against hemorrhagic septicemia.
 156 Visits to unsanitary premises were made by district veterinarians.
 8 Reported cases of actinomycosis were investigated.

HORSES

27 Horses examined for glanders.
 1,575 Horses received on permits and released.

DOGS

1,714 Cases of possible rabies in animals were investigated.

SWINE

96,393 Treatments given in prevention or cure of hog cholera.
 32,833 Treatments given in prevention or cure of hemorrhagic septicemia.
 2,173 Treatments given in prevention or cure of necro-bacillosis.

BOVINE TUBERCULOSIS

The work in connection with the eradication of tuberculosis in cattle continues as the most important activity of the Division. For convenience the record of this work is divided into three classes:

- (1) The examination of cattle reported as showing physical symptoms of disease.
- (2) The tuberculin testing of cattle.
- (3) Supervision of the interstate movement of cattle into Massachusetts.

1. *The examination of cattle reported as showing physical symptoms of disease.* Any person who has reason to suspect the existence of any contagious disease in a domestic animal is required under the law (Sec. 28, Chap. 129) to report same. If upon examination the animal is found to be affected with tuberculosis, it may by order of the Director be condemned and killed (Sec. 11, Chap. 129) and an amount not exceeding \$25 (Sec. 12-A., Chap. 129) paid the owner if the animal had been owned by him for a period of not less than 60 days, and had been kept within the Commonwealth for six consecutive months both periods being next prior to date of killing. Under this section 558 head of cattle were reported to the Division of which 417 were killed and lesions of tuberculosis found; 8 were killed and no lesions found; 3 were slaughtered by owner and lesions found; 7 were slaughtered by owner and no lesions found; 25 died prior to examination by a Division agent and 98 were released, physical examination not indicating tuberculosis. In connection with this section of the work it is required that the agent inspecting the animal also make a careful physical examination of all other cattle in the building where the suspect is housed. If the animal is condemned disinfection of the premises occupied by said animal is ordered. The local inspector of animals is then required to report when disinfection has been properly done, and at the expiration of three months is required to make a careful physical examination of all cattle then on the premises.

2. *The tuberculin testing of cattle.* The use of tuberculin as a diagnostic agent is (Sec. 32, Chap. 129, Gen. Laws) restricted to cattle brought into the Commonwealth — cattle in quarantine stations at Brighton and Somerville — cattle reported by a competent veterinary surgeon as tuberculous upon physical examination and to cattle the owner of which makes a written request for test. That the trend of cattle owners is to free their herds of tuberculosis by the use of tuberculin in the testing of cattle is evidenced by the increased demand each year for this class of work. While the law (Chap. 353, Acts of 1922) commonly referred to as the "Request Test Law" is in no way compulsory, a written request being required before the test can be applied, — the increasing number of local boards of health making regulations requiring that unpasteurized milk intended for sale be from tuberculin tested cows is gradually forcing into testing many dairy owners that otherwise would not apply.

This year a decrease is shown in the number of herds presented for first test — 490 as compared with 882 in 1925, and in the total number of tests made, 1878 against 2093 in 1925. This decrease was due to two conditions, namely, — the lack of a sufficient Federal allotment to insure payment by the Federal government of claims of owners for reacting cattle and the temporary discontinuance of all testing by the Division pending investigation of the so-called cattle frauds. Through the cooperation of the State with the United States Government in the testing of cattle, Massachusetts owners of reacting cattle are, if certain specific rules and regulations are complied with, allowed compensation by the Federal government to an amount usually equal to that paid by the Commonwealth of Massachusetts. The Federal allotment to Massachusetts for this purpose does not equal the amount appropriated by the State itself and is rarely sufficient to meet all claims for payment. The appropriation for the Federal fiscal year beginning July 1, 1925, became exhausted in November 1925, and as a new appropriation was not available until July 1, 1926, no test or retest during that period was conducted by this Division except on receipt of a so-called "waiver", i. e., a form signed by the owner of the cattle to be tested agreeing to accept State payment only, to be supplemented by Federal payment provided an additional Federal allotment was received for that purpose. This had a natural tendency to retard the work as shown by the decreased number of requests for new tests received, and by the postponement of the making of many retests during the period between November 15, 1925, and July 1, 1926, seven months of our fiscal year. On August 17th all testing by the Division was discontinued pending an investigation of reported irregularities in connection with tuberculin testing in Hampden County and which investigation has since extended to all the counties in the Commonwealth. On October 11th testing was resumed but limited to herds previously tested, that is to retest work. The making of new or first tests was not authorized until late in November, too late to be included in this year's record.

Following is the year's record of tests:

1,878 herds tested; 37,675 cattle tested (13,807 purebred, 23,868 grade).

6,337 cattle reacted (987 purebred, 5,350 grade).

First test, 490 herds, 6,814 head, 3,638 reacted.

Second test, 468 herds, 5,693 head, 795 reacted.

Third test, 636 herds, 17,862 head, 1,779 reacted.

Accredited herds, 284 herds, 7,306 head, 125 reacted.

The percentage of reactors found to all tests equals 16.8%.

1st test—53.4%. 2nd test—13.9%. 3rd test—9.9%. Accredited Herds 1.8%.

Tests were made in 1,615 different herds containing 30,298 head of cattle, 5,582 or 18.4% reacting. A second test was made in 251 of these herds containing 6,756 head, 654 reacting, and a third test in 12 of these herds containing 621 head, 101 reacting.

On November 30, 1926, there were listed 1,875 herds containing 28,495 head under supervision as compared with last year's figures of 1,716 herds, 26,646 head. The above figures indicate 7% of the herds and 14.7% of the cattle population of the State as being under test.

444 herds containing 9,736 head of cattle have received Accredited herd certificates from the United States Bureau of Animal Industry having passed two annual tests without a reactor.

561 additional herds containing 6,314 head of cattle have passed one clean test.

293 herds containing 1,445 cattle, two clean tests.

This makes a total of 1,298 herds in which no reacting cattle were found at last test and which herds contained 17,495 head of cattle.

These figures show an increase over last year's record which was as follows: 376 herds, 8,105 head — accredited; 527 herds, 5,777 head — one clean test; 187 herds, 1,002 head — two clean tests. Total — 1,090 herds, 14,884 head of cattle.

The following tabulation is a record of the "Request Test" work by counties for the year:

	TOTAL TESTS			UNDER TEST		ACCREDITED	
	Herds	Head	Reacted	Herds	Head	Herds	Head
BARNSTABLE.....	242	1,357	68	220	1,041	44	445
BERKSHIRE.....	207	4,609	336	259	4,750	72	1,740
BRISTOL.....	56	1,734	149	47	1,346	21	827
DUKES.....	10	104	15	35	269	16	121
ESSE X.....	54	2,355	112	48	1,658	21	405
FRANKLIN.....	67	2,059	121	66	1,635	40	1,155
HAMPDEN.....	100	2,504	977	100	1,467	42	783
HAMPSHIRE.....	77	2,879	645	74	1,775	24	582
MIDDLESE X.....	273	5,360	1,201	225	3,151	26	555
NANTUCKET.....				9	162	2	24
NORFOLK.....	198	3,746	606	214	2,876	34	488
PLYMOUTH.....	291	3,308	461	278	2,648	32	542
SUFFOLK.....	9	101	17	15	113	3	6
WORCESTER.....	294	7,559	1,629	285	5,604	67	2,063
TOTAL.....	1,878	37,675	6,337	1,875	28,495	444	9,736

These 1,878 herd tests were conducted by:

Division Agents.....	1,178 herds	28,160 head	5,345 reacted
Per diem agents.....	91 "	1,689 "	63 "
Federal agents.....	452 "	5,523 "	656 "
Private veterinarians under authorization: 157 "		2,303 "	273 "

For purpose of identification it is required that any bovine animal which reacts to a tuberculin test be tagged by insertion into the left ear of a metal tag, this tag furnished by this department is marked MASS. REACTOR and bears a serial number. For some time it has been felt that the ease with which this tag may be removed opens the way for unscrupulous persons to defeat the purpose of the requirement by either changing the tag from one animal to another, usually of inferior quality, or removing it altogether. In an endeavor to prevent action of this kind legislation was asked for at this year's session of the Legislature which if passed would have allowed the branding of reacting cattle. This recommendation of the Commissioner was referred to the next General Court. Rumor that changing of tags was actually taking place resulted in the issuing of an order by the Commissioner to brand all reacting cattle, which order late in September was approved by the Governor and Council. This order should prevent reacting cattle from being disposed of for any purpose other than immediate slaughter and should stop to some extent the alleged practice of changing of ear tags.

Too much stress can not be given to the fact that the detection of tuberculosis through employment of the tuberculin test is only one factor in the cleaning up of an infected herd, district or area. Removal of reacting cattle *without* proper disinfection of premises, careful selection of new purchases, and constant vigilance of the cattle owner against reinfection will never result in eradication of this disease. Floors, walls, ceilings, mangers, drinking fountains and yards should be given a thorough cleansing and disinfection; manure should be removed and exposed through spreading to the rays of the sun. No additions to a herd should be made without knowledge of the history of the herd from which animal is derived and then only on approved record of test. Vigilance should be observed against possible contact with visitors from badly infected premises or through direct contact across line fences, etc.

The question of replacements for cattle which react and are slaughtered is one that gravely concerns all herd owners. The slaughter of 23,569 reacting cattle in the last four years has resulted in a serious shortage in the available supply to be found in the three States to which Massachusetts naturally turns for its replacements, namely, —Vermont, Maine and New Hampshire. In an attempt to relieve this shortage buyers have in the past year made shipments from points as far away as Pennsylvania, Wisconsin, Nebraska and Canada.

Conditions surrounding shipments through the Brighton Stockyards to which market many buyers are obliged to go for purchase of cattle have not been entirely satisfactory, but changes are now under consideration whereby it is hoped to provide a safe market for the purchase of cattle shipped thereto from herds being maintained under State and Federal supervision.

During the year there were 3,971 Massachusetts cattle intended for dairy purposes consigned to the quarantine station at Brighton; 3,811 were accompanied by satisfactory certificates of test; 160 were untested. Department regulations require that all cattle leaving the quarantine station for dairy purposes must have passed a satisfactory tuberculin test, accordingly, all untested cattle are tested upon arrival. As a result of such test to the 160 head of cattle referred to above, 38 or 24% reacted.

3. *Supervision of the interstate movement of cattle into Massachusetts.* Massachusetts regulations (Department Order No. 35) require that all cattle shipped into this state, with the exception of cattle consigned to a slaughtering establishment maintained under Federal inspection and cattle consigned to the quarantine stations at Brighton and Somerville, must be accompanied by a permit for shipment issued by the Director of the Division of Animal Industry. Massachusetts law (Chap. 495, Acts of 1924) requires that cattle intended for dairy purposes shall be inspected and passed as healthy prior to shipment to this State. On arrival cattle must remain under quarantine until identified and released, identification being made from the health certificate or record of test forwarded by the livestock official of the state in which shipment originated. For the convenience of cattle buyers and shippers this Division maintains an office at the public stock yards at Brighton for purpose of identifying and releasing cattle shipped thereto for sale purposes, for issuing of health certificates if called for, checking of State reactors and for applying the tuberculin test to such cattle as are brought in untested. During the year 12,809 dairy cattle originating from the following States were received and checked at these yards: Maine 5,970; New Hampshire 3,781; Vermont 2,691; Connecticut 22; New York 215; Minnesota 90; Ohio 20; Canada 20. Eleven thousand two hundred and thirty-one were released on approved records of test; 1,578 held and tested. Of the 1,578 head held and tested, 124 reacted.

At other points in the State there were received on permits issued from this office 11,577 head of cattle from the following states: California 26; Canada 242; Colorado 12; Connecticut 563; Indiana 93; Iowa 3; Kansas 1; Maine 1,267; Maryland 13; Michigan 71; Minnesota 216; Missouri 15; New Hampshire 2,219; New Jersey 765; New York 1,105; North Carolina 1; Ohio 84; Oklahoma 17; Pennsylvania 92; Rhode Island 692; Texas 1; Vermont 3,404; Virginia 35; Washington 17; West Virginia 53; Wisconsin 570. Of these 11,577 cattle, 2,301 were for immediate slaughter; 1,166 for exhibition purposes and 8,110 for dairy purposes. Of the 8,110, 7,935 were accepted on tests made before shipment and 175 were tested after arrival.

That cattle untested and unaccompanied by a permit are brought into the state in violation of both State and Federal laws is frequently drawn to the attention of this Division. Efforts are constantly made to prevent this illegal traffic and persons apprehended are promptly prosecuted. Cooperation by border states in prevention of this violation of regulations is being sought at this time.

CONTAGIOUS DISEASES OF SWINE

The general policy regarding the prevention and cure of swine diseases adopted by this Division has been followed during the past year. The increased demand for this work indicates that the swine owners appreciate the value of the service and realize the necessity of protecting swine against the ravages of disease if the raising

of this class of animals is to be at all profitable. The larger part of the work in connection with the immunizing of swine against cholera is done by agents of this division, the services of these agents are furnished without cost to the swine owner — the owner has, however, to pay for the serum or virus used, payment being made direct to the biologic house supplying the material. Experience has shown that swine fed on garbage are particularly subject to outbreaks of hog cholera unless the individual members of the herd have been previously immunized against the disease by use of the so-called simultaneous treatment, i. e. — the injection of anti-hog cholera serum and hog cholera virus. If treatment is given early danger from this source is practically eliminated, the treatment assuring life immunity.

An outbreak of cholera covering a wide expanse of territory occurred during the Summer and Fall in the Western States, and was to some extent felt here in the East. An alarming shortage of serum and virus necessitated modification of government requirements surrounding the manufacture of these products in order to facilitate its production. Fortunately the biologic houses holding permits to ship this class of material to Massachusetts had a sufficient supply furnished to this Division to provide for all our needs. In accordance with our requirements, all serum and virus shipped to this state is tested as to its potency at a test house maintained at Tewksbury, thus insuring material up to the required standard. During the year 96,393 treatments in prevention or cure of cholera were administered, an increase of 11,417 over those applied in 1925. These 96,393 treatments were given on 805 different premises in 182 cities and towns and required the making of 2,163 visits by one or more field men. Private veterinarians holding permits as required by department Order No. 12 applied 108 treatments during the year. The graph at end of this report gives a record of treatments applied since this class of work was begun.

Hemorrhagic Septicemia: Co-existent with or often following cholera, hemorrhagic septicemia is found to occur. In many instances fatal, death occurring in a comparatively few hours, it necessitates early and prompt attention. Preventive treatment by use of aggressin and curative treatment by use of bacterin or serum is resorted to and meets with marked success if employed before the disease has gained too strong a foothold. During the past year 32,833 treatments have been applied.

Necro-bacillosis: While not so prevalent as hemorrhagic septicemia, necro-bacillosis is called to our attention occasionally. One outbreak was reported this year; 2,173 treatments being given.

RABIES

An increase in the number of positive cases of rabies this past year of 75 cases over the report of 1925 is recorded. There is probably no contagious disease of animals which is regarded by the general public with more fear than is rabies. Once its symptoms in man or animal are manifest there is little if any possibility of preventing a fatal termination. Notwithstanding this fact there is a general disregard of laws relating to dogs, the usual carrier of the infection. If the proper County, City or Town officials would compel enforcement of the law which requires all dogs to be licensed, which law makes it obligatory for licensed dogs to wear a collar bearing name and address of owner, and would see that all dogs not so equipped were humanely destroyed, this procedure by removing the unlicensed and stray dogs would greatly aid in preventing spread of rabies. Many cases are brought to our attention which we are unable to trace to their source on account of lack of collar or distinguishing mark.

The quarantine methods employed in the past few years having proven most effective, are still followed. Animals known to have been in contact with a rabid animal are ordered restrained for a period of 90 days from date of said contact. Animals known to have bitten persons are restrained for 14 days from date injury was inflicted. In towns or cities where rabies has occurred the local officials have the power to enforce a general or town quarantine. The immunizing of dogs against rabies, although proving to be effective in some states, has not been very generally adopted. The Division's records relating to rabies are divided into three classes:

1. Animals exhibiting symptoms resembling rabies.
2. Animals known to have been in contact with a case of rabies.
3. Animals which have been reported as having inflicted injuries by biting or scratching.

During the year 1,714 animals were reported for diagnosis, quarantine or observation and with the 84 cases brought forward for disposal from previous year made a total of 1,798 animals. These cases are recorded as follows:

Class 1. Reported as rabies: 293 dogs and 1 cat proved to be rabid on either physical examination, laboratory examination or both; 53 dogs, 2 cats and 1 cow were proved not to have rabies and 5 dogs were considered as suspicious, i. e., symptoms not definite enough to justify a positive diagnosis.

Class 2. Animals in contact with a case of rabies; 268 dogs, 2 cats and 2 pigs were released after a 90 day period of quarantine as no symptoms of rabies had developed. Thirty-six dogs, 5 cats and 1 pig were killed by owners or died without symptoms of rabies. Twenty-four dogs and 6 pigs developed definite symptoms of rabies. Five dogs and 1 cat died examination indicating death due to a condition other than rabies. Thirty-nine dogs were under quarantine at the close of the fiscal year.

Class 3. Animals inflicting injury by biting or scratching: 912 dogs and 3 cats were released after a 14 day period of quarantine, no symptoms of rabies developing. Sixteen dogs were killed by owners and no examination made; 88 dogs and 5 cats were killed, laboratory examination not indicating rabies; 29 dogs and 1 cat were under observation at close of fiscal year.

From this record it is shown that 317 dogs, 6 pigs and 1 cat were diagnosed as rabies. One thousand two hundred fifty-one persons were reported as being bitten or scratched by dogs, 14 by cats and 2 by horses. Of the 324 animals recorded as positive cases of rabies 93 dogs were reported as having bitten 180 persons and 1 cat as having bitten 5 persons. Of the 1,714 animals reported 100 dogs and 1 cat are recorded as "owners unknown"; 26 dogs and the 1 cat proving to be rabid.

Laboratory examination of the brains of 342 animals indicated 203 to have been affected with rabies.

GLANDERS

Glanders, a disease of horses, for years prevalent in this State has apparently been eradicated as far as Massachusetts is concerned as not a positive case has been found this year. Considered on account of its transmissibility to man, generally with fatal results, and on account of its economic significance to horse owners, as one of the most important animal diseases with which this Division has had to contend, it now occupies a minor place in the activities of the Division. Regardless of the fact that not a case of glanders was found this year it is unreasonable to expect that an occasional case may not arise, as from the nature of the disease it is known the infection may remain latent for years before developing active symptoms.

Reports of horses showing symptoms of the disease are given immediate attention and in addition to physical examination in most cases the animals are subjected to the ophthalmic test or blood is taken for laboratory examination and in some instances both tests are made. During the year 27 horses were reported as suspects. Twenty-five samples of blood were taken from 23 of the 27 and ophthalmic tests applied to 14 with negative results.

Order No. 36 requiring permits for horses intended for shipment to this state from New York, New Jersey, Rhode Island and Connecticut still remains in force. This order has served its purpose well, but need for its enforcement is past and revocation of the order is now under consideration. One thousand five hundred and seventy-five horses arrived in the State during the year on permits, 6 of which were held for test but later released.

MISCELLANEOUS DISEASES

Anthrax: Not a case of anthrax has been reported during the year. As the causative agent of this disease, a spore bearing bacillus, is very resistant to destruction, remaining in the soil for years, an occasional outbreak is apt to occur in previously infected areas. Care should accordingly be taken to avoid the use of portions of buildings or pastures where the disease has previously been found unless anthrax preventive treatment has been given animals placed on those premises. Fifteen head of cattle were given preventive treatment by division veterinarians this year.

Blackleg: The causative agent of this disease like that of anthrax is found to infect premises particularly pastures for years. Such pastures should accordingly be avoided unless preventive blackleg treatment is given to animals to be pastured there. It is a disease peculiar to young cattle, usually occurring in cattle under two and a half to three years of age generally during the pasture season; its sudden development with early and high mortality rate often leads cattle owners to suspect the dead animals to have been killed by lightning. Preventive treatment if given before infection occurs is nearly 100% effective — the acquired immunity lasting for about a year. Treatment is usually given just prior to turning cattle to pasture, thereby insuring them against this disease. This year treatment by division agents was given to 647 animals on 72 farms in 30 towns.

Actinomycosis: A disease generally of cattle and usually affecting the bones of the jaw is called to our attention each year in different sections of the state. If found in early stages it is amenable to treatment recoveries often occurring. If treatment is not desired, the affected animal is condemned for slaughter. Eight cases in 7 towns were reported this past year.

Mange: Mange, a parasitic disease of animals — at times prevalent in horses and cattle and requiring prompt quarantine measures — has been reported on only three premises this year, 5 head of cattle being affected, all of which responded to treatment and were released.

Infectious or Contagious Abortion: This disease now recognized as a specific infection is without doubt the most widely disseminated of all contagious animal diseases, being found more or less prevalent in every section of the country. Authorities vary regarding not only the method to employ in its treatment but also as to the advisability of quarantine or condemnation of affected animals. No action has as yet been taken by this division to regulate the movement or reporting of cattle affected with this disease. Laboratory service is, however, offered to veterinarians or livestock owners for purpose of examination of blood or specimens for detection of bacillus abortus, now generally conceded to be the causative agent. There were received this year 116 samples of blood for examination taken from cattle on 19 premises. Of this number 39 were diagnosed as positive.

Tuberculosis in Swine: This disease in swine is not found to any extent in Massachusetts, but is reported occasionally, usually found at time of slaughter. Although generally found in garbage fed swine, investigation has at times led to discovery of tubercular cattle on the premises on which the affected swine originated. Disinfection of the premises and a physical examination of cattle thereon are required when the disease is reported. During the year 3 cases were reported.

LABORATORY SERVICE

During the year the bacteriological laboratory of the State Department of Public Health has rendered valuable service in the examination of specimens submitted for diagnoses. Its service is of especial value in connection with the examination of brains of animals for diagnoses for rabies; examination of samples of blood for glanders in horses and for infectious abortion in cattle. During the year the brains of 331 dogs, 8 cats, 1 cow and 2 horses were examined for rabies, 25 samples of blood for glanders and 116 samples of blood for infectious abortion. In addition to the above the following specimens were examined: Anthrax, 5; Blackleg, 1; Hemorrhagic Septicemia, 8; Tuberculosis, 10; Miscellaneous, 5.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

Under the provisions of Section 19, Chapter 129 of the General Laws, an order was issued by the Director on January 12, 1926, to every inspector of animals in the cities and towns of the Commonwealth calling for an inspection of all cattle, sheep and swine and of the premises where kept.

This order called for the completion of the inspection by March 1, and for a report of the same to be promptly forwarded to the Division's office. The inspectors' reports came forward in most instances in good season and were duly examined and tabulated in minute detail.

These reports constitute a "census" of the cattle, sheep and swine on 26,666 farms or premises in the State where these species of animals are kept. From these reports the following facts are gathered:—

The number of cattle of all kinds has decreased from the 1925 record of 204,163 to 192,777 — a decrease of 11,386 head.

The number of swine reported by local inspectors of animals in the Spring months of this year was 70,062.

The number of sheep reported was 10,693.

No meetings of Inspectors of Animals were held this year as it was decided to postpone these meetings until the latter part of March, 1927.

RECOMMENDATIONS FOR LEGISLATION

1. Tuberculin Testing of Cattle. — Under the present law there is nothing to prevent a person acquiring cattle immediately prior to an application for a tuberculin test regardless of whether said person is the owner or not, or presenting cattle for test on premises other than those of said owner and thereby defeating the law, the purpose of which is to maintain herds free from tuberculosis.

The proposed amendments require that the person applying for the test shall have owned the cattle on the premises where tested for sixty days or have added them to his herd on proper test. The act also provides that an application for a tuberculin test shall be signed by the owner only. These measures should help to prevent fraud against the Commonwealth.

2. Reimbursement by the Commonwealth for the Slaughter of Certain Cattle Affected with Tuberculosis. — During each of the past three years the Federal allotment for reacting cattle became exhausted. This exhaustion of funds apportioned by the Federal government for payment to citizens of Massachusetts for cattle which react to a tuberculin test applied under the State and Federal cooperative agreement, deprives many Massachusetts cattle owners of Federal payment for such cattle regardless of the fact that said owners may have complied with the rules and regulations under which this test is applied. Failure of such payment is a hardship for farmers or cattle owners who are attempting to maintain herds of cattle free from tuberculosis. This act would remedy the possible lack of Federal funds and encourage cattle owners in the continuance of this work by enabling the Commonwealth to pay the share of the Federal Government when their appropriation became exhausted.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 79, Acts of 1926	\$3,500 00
Expended during the year for the salary of the Director	\$3,206 76
Unexpended balance	293 24
	<hr/>
	\$3,500 00
Appropriation for personal services of clerks and stenographers, chapter 79, Acts of 1926	\$9,300 00
Transferred from Appropriation for Extraordinary Expenses	110 00
	<hr/>
Total amount appropriated	\$9,410 00

Expended during the year for personal services of clerks and stenographers	\$9,410 00
Appropriation for services, other than personal including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 79, Acts of 1926	\$4,300 00
Expended during the year for the following purposes:	
Books and maps (\$52 less \$2 Refund)	\$50 00
Express and messenger service	288 80
Postage	787 51
Printing report	57 95
Other printing	592 85
Telephone and telegrams (\$839.48 less \$26.85 Refunds)	812 63
Stationery and office supplies	974 32
Expenses of the Director	74 09
Total expenditure	\$3,638 15
Unexpended balance	661 85
	\$4,300 00
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 79, Acts of 1926	\$44,500 00
Brought forward from 1925 Appropriation	25 00
Transferred from Appropriation for Extraordinary Expenses	750 00
Total amount appropriated	\$45,275 00
Expended during the year for the following purposes:	
Services of salaried agents	\$35,405 00
Services of per diem agents	8,237 00
Labor hired	104 00
Total expenditure	\$43,746 00
Unexpended balance	1,529 00
	\$45,275 00
Appropriation for the traveling expenses of veterinarians and agents, chapter 79, Acts of 1926	\$22,000 00
Supplementary Appropriation, chapter 398, Acts of 1926	1,000 00
Transferred from Appropriation for Extraordinary Expenses	250 00
Total amount appropriated	\$23,250 00
Expended during the year for the following purposes:	
Traveling expenses of regular agents	\$18,816 16
Traveling expenses of per diem agents (\$3,799.80 less \$70 Refund)	3,729 80
Total expenditure	\$22,545 96
Unexpended balance	704 04
	\$23,250 00
Appropriation for reimbursement of owners of horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, chapter 79, Acts of 1926	\$5,700 00

Expended during the year for the following purposes:

1 horse condemned and killed on account of glanders (1925)	\$50 00
Supplies for veterinary inspectors	490 20
Laundry	389 73
Antiseptics, biologics and disinfectants	238 85
Thermometers, needles, syringes, etc	475 35
Ear-tags, punches, chains, etc.	3,214 75
Expenses of killing and burial	23 00
Quarantine expenses	341 25
Sundries	40 25
 Total expenditure	 \$5,263 38
Unexpended balance	436 62
	<hr/>
	\$5,700 00

Appropriation for reimbursement of owners of cattle killed as authorized by chapter 304, Acts of 1924, and chapter 129, General Laws, as amended by chapter 353, Acts of 1922, during present and previous years, chapter 79, Acts of 1926 . . . \$200,000 00

Brought forward from 1925 Appropriation . . . 13,083 35

Total amount appropriated \$213,083 35

Expended during the year for the following:

5,807 head of cattle killed in 1924, 1925 and 1926 (chapter 353, Acts of 1922) (\$158,707.96 less \$950 Refund)	\$157,757 96
415 head of cattle killed (physical cases)	10,727 57
 Total expenditure	 \$168,485 53
Unexpended balance	44,597 82
	<hr/>
	\$213,083 35

The average amount paid for condemned tuberculous cattle for the year was \$24.48.

The average amount paid for cattle slaughtered under the provisions of Chapter 353, Acts of 1922, was \$47.46 for registered purebred cattle and \$23.57 for grade cattle.

Sixty claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$1,470.

Two hundred and eighty-six unpaid claims covering 2,886 cattle, to which provisions of Chapter 353, Acts of 1922, apply, remain unpaid, amounting to \$74,309.94.

There has been received a refund of \$23.22 on account of previous year's expenses.

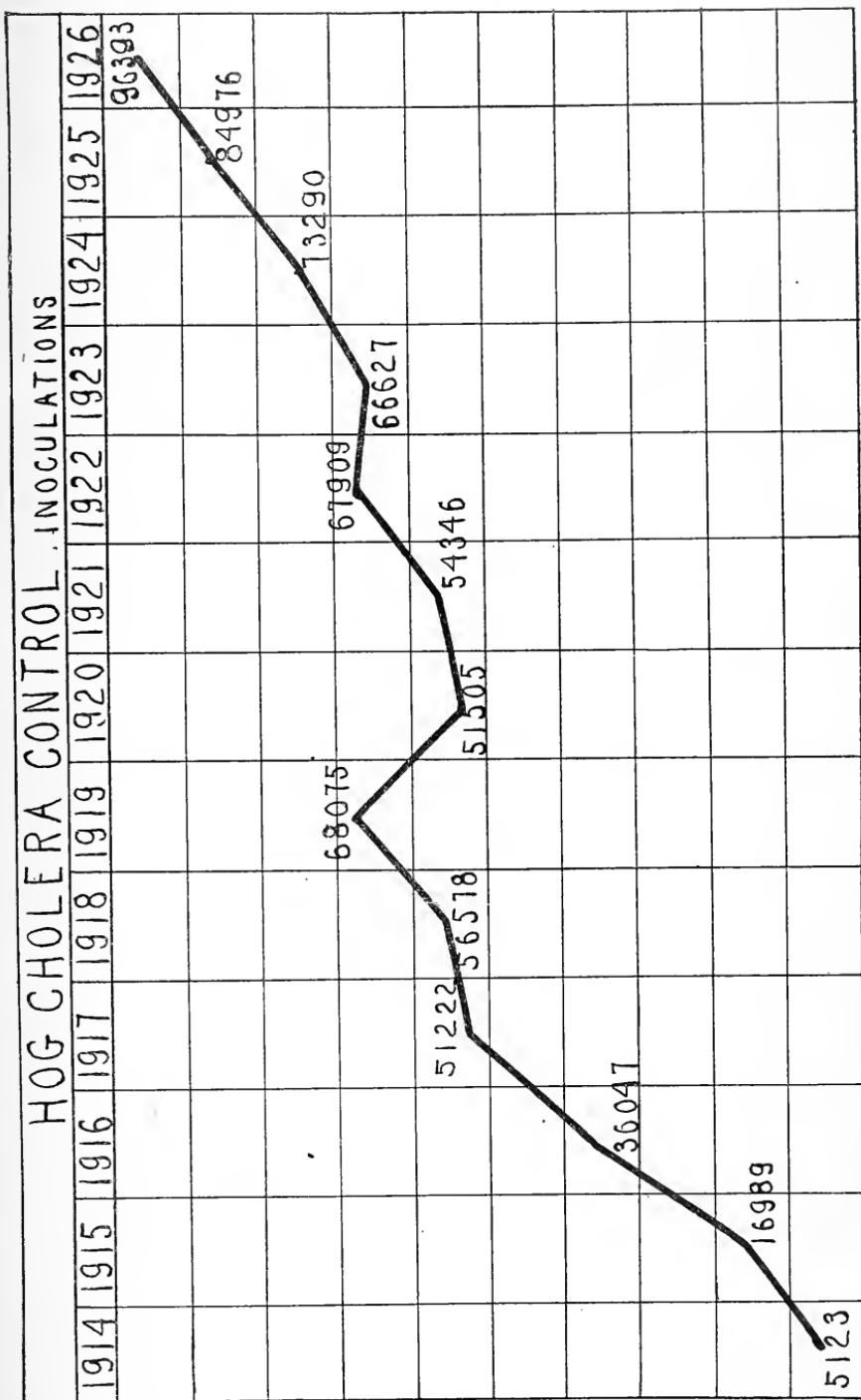
There has been received during the year from the sale of hides and carcasses of condemned animals \$38.47.

Respectfully submitted,

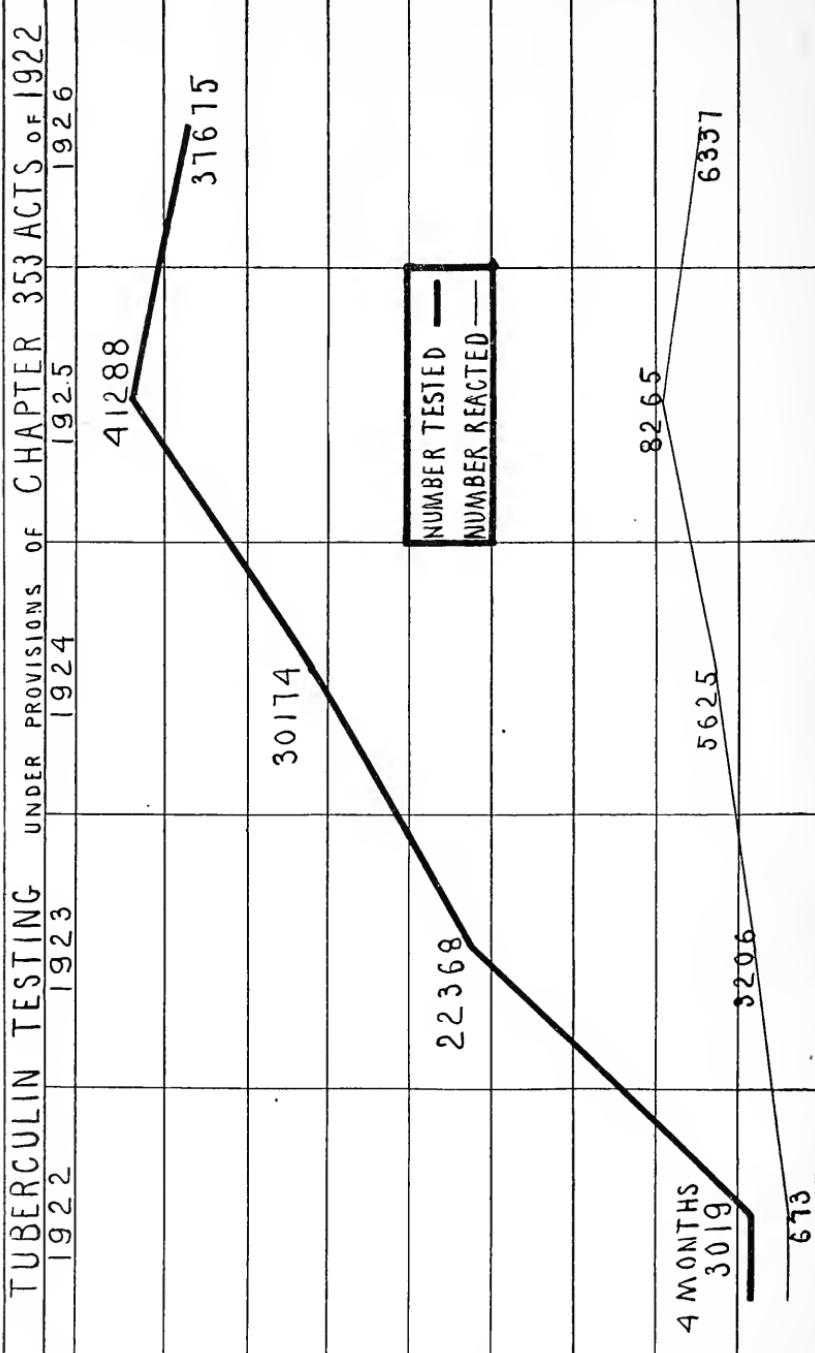
FRANK B. CUMMINGS, *Director.*

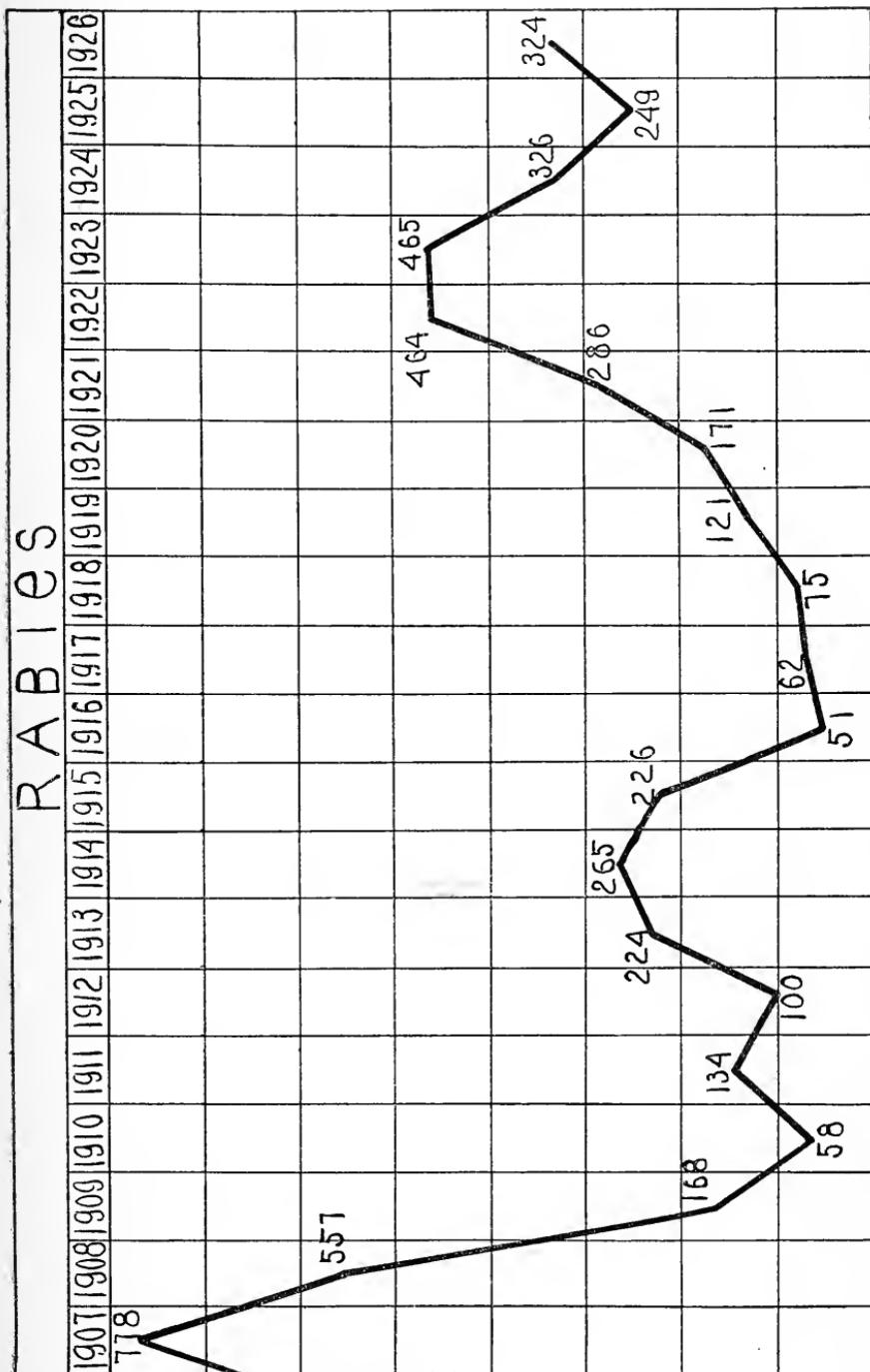
APPENDIX

The following graphs show the work of the Division of Animal Industry in control of the principal contagious diseases of animals for a period of years.



T U B E R C U L O S I S





The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1927



MASS.
DOCS.
COLL.

The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY
BOSTON, NOVEMBER 30, 1927

To the Commissioner of Conservation:

The report of the work of this Division for the year ending November 30, 1927, is respectfully submitted herewith. The function of the division is the prevention, suppression and when possible the extirpation of contagious diseases of domestic animals. The success of the year's work can be measured to some extent by the increase in amount of preventive work done which should and does (with one notable exception—Rabies) reflect a decrease in number of cases of transmissible diseases reported.

GENERAL SUMMARY

CATTLE

- 5,184 Massachusetts cattle physically examined by agents or inspectors—a decrease of 15%
- 113 Massachusetts cattle tuberculin tested at Brighton stockyards—a decrease of 29%
- 50,429 Tuberculin tests made under provisions of Request Test Act—an increase of 33-1/3%
- 730 Interstate cattle tuberculin tested
- 14,676 Interstate and State cattle examined at stockyards, Brighton and their test records viséed
- 9,267 Interstate cattle identified by inspectors at other points
- 748 Animals on 81 farms in 34 towns given preventive treatment against blackleg
- 372 Preventive treatments against hemorrhagic septicemia
- 318 Physical cases of bovine tuberculosis—102 less than previous year
- 4 Reported cases of actinomycosis were investigated
- 165 Visits to unsanitary premises were made by district veterinarians

HORSES

- 24 Horses examined for glanders—1 positive case
- 1,297 Horses received on permits and released

DOGS

- 3,198 Cases of possible rabies were investigated—an increase of 86%

SWINE

- 114,019 Treatments given in prevention or cure of hog cholera—an increase of 18%
- 25,324 Treatments given in prevention or cure of hemorrhagic septicemia—a decrease of 23%

BOVINE TUBERCULOSIS

The work in connection with the eradication of tuberculosis in cattle still continues as the most important activity of the Division. The "exposure" of the fraudulent owner testing in 1926 had a tendency to slow up the work as regards applications for new tests. However, with returning confidence interest has been renewed as evidenced by an increase

of 90% in number of first or original tests made over previous year, 933 in 1927 compared with 490 in 1926. Other gains are as follows:

		1926	1927
An increase of 178 accredited herds		444	622
" " " 3,215 " cattle		9,736	12,951
" " " 409 herds passing one clean test		561	970
" " " 3,428 cattle " " "		6,314	9,742
" " " 104 herds " two " "		293	397
" " " 819 cattle " " "		1,445	2,264
" " " 691 herds showing no reactors		1,298	1,989

We now have 24,957 clean cattle in herds in which no reactors were found at the last test, a gain of 7,462 over previous year. This has been accomplished at a decreased indemnity expense to the state, the obligation incurred for indemnity for the year 1927 being \$57,834.59 less than previous year, notwithstanding an increase of 33-1/3% in testing. This work has been carried on under the provisions of what is commonly referred to as the Request Test Law (Chap. 353 Acts of 1922 and amendments thereto) in accordance with which tuberculin testing is done only on written request of owner. The so-called Area Test Bill (Chapter 335 Acts of 1927), approved April 27, 1927, operative ninety days later gave authority as follows:

"Section 33 B. Whenever not less than eighty-five per centum of the cattle permanently kept in a town are, upon application of their owners, being tested for bovine tuberculosis under the supervision of the director, the director may apply the same test to all other cattle in such town."

The power thus invested in the Director has never been invoked because it was felt that this procedure would work an injustice to the cattle owners until such time as a larger indemnity (comparable to that allowed by other states) had been provided. That a substantial increase in indemnity should be provided by the next legislature is the writer's sincere belief.

For convenience the record of this work is divided into three classes.

(1) *The examination of cattle reported as showing physical symptoms of disease.*

The work of the department in connection with this classification is authorized under Chapter 129 Sec. 29 (requiring report of the existence of contagious disease in domestic animals), Sec. 11 (examination and condemnation of animals found to be affected with tuberculosis), and Sec. 12-A (payment for cattle condemned).

The following tabulation shows disposition made of 421 head of cattle quarantined or reported under this section of the work:

	CONDENMED		*PERMIT TO KILL		DIED	RELEASED	FORWARD
	Lesions found	No Lesions found	Lesions found	No Lesions found			
FORWARD, 1926	5						
1926							
DECEMBER	17				1	2	4
1927							
JANUARY	42	1	1	1	2	2	12
FEBRUARY	41		2		2		16
MARCH	43		1		3		6
APRIL	19	2		1	1		6
MAY	32				1		6
JUNE	18	1		1	4	2	
JULY	25				2		3
AUGUST	14	1					6
SEPTEMBER	22				3		3
OCTOBER	16		1	2			3
NOVEMBER	19			1	1		3
INCOMPLETE							5
TOTAL	313	5	5	7	21	70	5

* In case of doubt as to the unhealthy appearance of an animal being due to tuberculosis, the owner is given the right to have it slaughtered, payment to be allowed only if tuberculosis is found present.

(2) *The tuberculin testing of cattle.*

Section 32, Chapter 129, General Laws, relative to the use of tuberculin and Chapter 353, Acts of 1922 the so-called "Request Test Law" were amended during this year by Chapter 335, Acts of 1927.

The following tables arranged so as to compare with report of the previous year are a record of the work accomplished in the testing of cattle at request of owner,—

	1927	1926	Increase		Decrease	
Herds tested	3,011	1,878	1,133	60%		
Cattle tested—purebred	17,738	13,807	3,931	28.5%		
Cattle tested—grades	32,691	23,868	8,823	36.9%		
Total	50,429	37,675	12,754	33.8%		
Cattle reacted—purebred	645	987			342	34.6%
Cattle reacted—grades	3,724	5,350			1,626	30.4%
Total	4,369	6,337			1,968	31. %
FIRST TEST						
Herds	933	490	443	90.4%		
Cattle	8,815	6,814	2,001	29.3%		
Reacted	2,289	3,638			1,349	37. %
Per cent reacted	25.9%	53.3%				
SECOND TEST						
Herds	521	468	53	11.3%		
Cattle	5,155	5,693			508	8.9%
Reacted	403	795			392	49.3%
Per cent reacted	7.7%	13.9%				
THIRD TEST OR MORE						
Herds	1,116	636	480	75.4%		
Cattle	25,593	17,862	7,731	43.2%		
Reacted	1,600	1,779			179	10. %
Per cent reacted	6.2%	9.9%				
ACCREDITED						
Herds	441	284	157	55. %		
Cattle	10,836	7,306	3,530	48.3%		
Reacted	77	125			48	38. %
Per cent reacted .....	.7%	1.8%				

The following table is a recapitulation by counties:

	FIRST TESTS			% REACTED	RETESTS			TOTAL TESTS			TOTAL % REACTED		
	Herds	Head	Re-acted		Herds	Head	Re-acted	Herds	Head	Re-acted			
BARNSTABLE	132	377	38	10.	239	1,301	34	371	1,678	72	4.2		
1926	29	198	8	4.	215	1,159	60	242	1,357	68	5.		
BERKSHIRE	122	1,479	332	22.4	275	6,155	322	397	7,634	654	8.5		
1926	66	937	151	16.1	141	3,672	185	207	4,609	336	7.2		
BRISTOL	12	161	61	37.8	58	1,843	46	70	2,004	107	5.3		
1926	8	44	17	38.6	48	1,690	132	56	1,784	149	8.5		
DUKES	7	46	1	2.1	37	298	4	44	344	5	1.4		
1926	7	90	14	15.5	5	14	1	10	104	15	14.4		
ESSEX	44	472	166	35.1	64	2,528	67	108	3,000	233	7.7		
1926	4	147	8	5.4	50	2,208	104	54	2,355	112	4.7		
FRANKLIN	36	476	80	16.8	80	2,541	16	116	3,017	96	3.1		
1926	10	173	3	1.7	57	1,886	118	67	2,059	121	6.8		
HAMPDEN	107	892	226	25.3	108	1,664	14	215	2,556	240	9.3		
1926	82	1,159	928	80.0	68	1,345	49	100	2,504	977	39.0		
HAMPSHIRE	224	2,277	290	12.7	100	2,729	78	324	5,006	368	7.3		
1926	20	869	548	65.	57	2,010	97	77	2,879	645	22.4		
MIDDLESEX	71	978	526	53.7	262	5,188	489	333	6,166	1,015	16.4		
1926	85	841	621	61.9	188	4,619	680	273	5,360	1,201	22.4		
NANTUCKET	1	48	2	4.1	7	130	3	8	178	5	2.8		
1926	0	0	0	0	0	0	0	0	0	0	0		
NORFOLK	79	535	307	57.3	259	5,266	424	338	5,801	731	12.6		
1926	28	216	144	66.6	170	3,520	462	198	5,746	606	16.1		
PLYMOUTH	46	343	61	17.7	271	4,106	258	317	4,449	319	7.1		
1926	107	681	195	28.6	184	2,627	266	291	3,308	461	15.9		
SUFFOLK	1	2	0	0.	13	206	79	14	208	79	37.9		
1926	0	0	0	0.	9	101	17	9	101	17	16.8		
WORCESTER	51	729	199	27.3	305	7,659	246	356	8,388	445	5.3		
1926	94	1,459	1,101	75.4	200	6,100	528	294	7,559	1,629	21.5		
1927	933	8,815	2,289	25.9	2,078	41,614	2,080	3,011	50,429	4,369	8.6		
1926	490	6,814	3,638	55.3	1,388	30,861	2,699	1,878	37,676	6,337	16.8		

UNDER TEST NOV. 30
1927 1926

ACCREDITED

1927 1926

	Herds	Head	Herds	Head	Herds	Head	Herds	Head
BARNSTABLE	303	1,171	220	1,041	78	441	44	445
BERKSHIRE	351	5,760	259	4,750	98	2,072	72	1,740
BRISTOL	54	1,584	47	1,346	31	1,169	21	827
DUKES	42	311	35	269	23	196	16	121
ESSEX	84	1,870	48	1,658	23	704	21	405
FRANKLIN	93	2,175	66	1,635	52	1,503	40	1,155
HAMDEN	179	1,988	100	1,467	47	785	42	783
HAMPSHIRE	288	2,845	74	1,775	38	1,009	24	582
MIDDLESEX	249	2,793	225	3,151	36	880	26	555
NANTUCKET	10	219	9	162	1	13	2	24
NORFOLK	241	2,713	214	2,876	38	428	34	488
PLYMOUTH	280	1,972	278	2,648	62	994	32	542
SUFFOLK	10	79	15	113	1	8	3	6
WORCESTER	288	6,166	285	5,604	94	2,749	67	2,063
TOTAL	2,472	31,655	1,875	28,495	622	12,951	444	9,736

The above figures indicate 9.5 percent of the herds and 17 percent of the cattle population of the State under test as compared with 7 percent of the herds and 14.7 percent of the cattle population in the year 1926.

The branding of reacting cattle with the letter "T" as required by Department Order No. 38—effective September 30, 1926, has proven of great value in the identification of reacting cattle at time of slaughter and has undoubtedly removed the possibility of unscrupulous persons disposing of reacting cattle for purposes other than slaughter.

Reacting cattle, for which owners are to be reimbursed, must be slaughtered in the presence of a representative of the division. During the year 5% of reactors slaughtered were reported as "No lesions" and 5.4% as "tanked." This compares with 4.8% "no lesions" and 2% "tanked" in 1926.

The average salvage received by owners of reacting cattle for this year was \$34.96 as compared with \$29.09 in 1926.

In an endeavor to assist purchasers of cattle intended as replacements for cattle which have reacted, a section of the quarantine station in the stockyards at Brighton was established May 24th, from which cattle from clean herds tested under State and Federal supervision can be purchased. While this action has not met with the cooperation from the dealers in cattle that was looked for, it is believed that it is proving of real benefit to owners of tested herds. Certificates on cattle from this section are stamped with the word "Approved" and are accepted for admission of said cattle to herds tested under the Request Test plan.

During the year there were received at the quarantine station 3,530 head of Massachusetts cattle intended for dairy purposes. Three thousand four hundred and seventeen were accepted on records of test made prior to shipment; 113 were held and submitted to test of which number 18 or 16% reacted. These figures compare with the 1926 record of 3,811 head accepted on test, 160 held for test, 38 or 24% reacting.

(3) *Supervision of the interstate movement of cattle into Massachusetts.*

Cattle moved into Massachusetts regardless of age or for what purpose must in compliance with the law (Dept. Order No. 35) be accompanied by a permit issued by the Director except and unless consigned to (A) the quarantine station at Brighton or Somerville (B) a slaughtering establishment where Federal inspection is maintained.

Dairy cattle received at quarantine stations:

Released on approved certificate of health Held and tested

75	Canada				
7	Connecticut				
	Indiana	2	1	reacted	
6,063	Maine	205	7	"	
3,201	New Hampshire	139	15	"	
216	New York	44	3	"	
1,697	Vermont	266	37	"	
11,259		656	63	(or 9.6% reacted)	

Total receipts 11,915 head

Compared with 11,231 received in 1926 on papers, 1,578 held and tested, 124 or 7.8% reacted.

There were 9,341 dairy cattle received at other points on permit from the following states: Canada, 345; Connecticut, 276; Illinois, 190; Indiana, 43; Iowa, 5; Kentucky, 30; Maine, 1,464; Maryland, 27; Michigan, 1; Minnesota, 18; New Hampshire, 959; New Jersey, 63; New York, 630; Nevada, 3; Ohio, 108; Pennsylvania, 28; Rhode Island, 99; Texas, 1; Virginia, 6; Vermont, 3,502; Wisconsin, 543. Seventy-four (74) of this 9,341 were tested after arrival, 12 reacting. In addition to the dairy cattle there were received on permits 4,494 beef cattle and 1,213 cattle for exhibition purposes. This compares with 8,110 dairy cattle, 2,301 beef cattle and 1,166 for exhibition purposes in 1926.

CONTAGIOUS DISEASES OF SWINE

The policy followed by the Division for the past few years in the control of cholera and its allied diseases in swine has been adhered to the past year. The effectiveness of the methods employed regarding requirement to report existence of cholera, quarantine of infected premises and supervision over the use of anti hog cholera serum and hog cholera virus is shown by general good health of swine on premises where immunization has been adopted. That this class of service is deemed by the swine owner to be of value is shown by the increased number of requests for treatment received.

Allied with and following cholera, hemorrhagic septicemia often occurs—depending somewhat on virulence of the so-called cholera "break" as well as climatic conditions.

By the following table it is noted that there was an increase of 17,626 in the number of preventive cholera treatments and a decrease of 7,509 in the number of hemorrhagic septicemia treatments required.

	1927	1926
Cholera treatments	114,019	96,893
Hemorrhagic Septicemia	25,324	32,833

RABIES

Rabies is on the increase to an alarming extent as shown by the reporting of 797 positive cases during 1927 as compared with 324 cases the previous year. Rabies is a preventable disease; inasmuch as the infection is practically always transmitted by a bite and since the animal that does the biting is almost always a dog, all that is really necessary is to restrain or muzzle *all* the dogs, and the disease would be under control in from 90 to 120 days.

Why then does this terrible menace to human and animal life remain unchecked and out of control? *The answer is apathy on the part of dog owners, and indifference on the part of those city and town officials charged with the duty of humanely destroying all unlicensed dogs.*

Our system of quarantine after contact, usually sufficient, is like locking the barn door after the horse has been stolen when rabies is as prevalent as at present in the area including and adjacent to the Metropolitan

District. Restraint to *prevent* contact is the only safe way to save the dog and prevent the spread of infection.

To this end the division has just sent out, November 30, 1927, a notice to the mayors of cities and the chairmen of selectmen of towns in seventy-one communities advising them of the alarming increase in the positive cases of rabies reported, and urging that all dogs be restrained from running at large for a period of 90 days beginning December 15, 1927. If ordinances are passed and properly enforced the control of the situation is assured. If not, it will be additional proof of the need of a revision of our present dog laws giving more centralized control to a state official, possibly the Commissioner of the State Department of Public Health. In this connection it is of interest to note from the report of the Chief of the Cattle Bureau for the year ending November 30, 1907, when a serious outbreak of rabies occurred, the following: "The local authorities also have ample power in the event of an outbreak of rabies to require that all dogs shall be properly and securely muzzled or restrained from running at large. The difficulty seems to be that in many communities the local authorities are lax in the enforcement of such orders, and while the laws are good they are rendered inoperative because of their non-enforcement." A brief detailed report follows:

	RABIES			SHOWING SYMPTOMS			CONTACT			BITE CASES		
	Positive	Negative	Questionable	Released	Killed or died—no symptoms	Killed positive	Not completed	Released	Killed—no examination	Killed negative	Not completed	
Forward, year 1926				34	5			30				
December	50	5		29	3	4		43	1	6		
1927												
January	61	10		40	6	7		51		6		
February	62	8		77	20	7		46	1	6		
March	73	13	2	149	28	8		106	1	7		
April	59	10		39	8	3		133	2	10		
May	58	8		65	12			125	3	9		
June	64	5	1	74	4	7		138	1	8		
July	50	4	1	134	4	27		171	1	13		
August	34	4	2	100	13	3		126	6	7		
September	33	10	1	5	7	29	44	99	1	7		
October	68	3	1	3	1	5	75	90	1	6		
November	67	5	2	3	11	11	53	34	3	6	23	
1927	679	85	12	752	122	118	172	1,192	21	91	23	
1926	294	56	5	272	42	30	45	915	16	93	30	
TOTAL POSITIVE CASES, 797												
Above record occurred in following animals:												
Cats	9	1	1	19	21	1	3	13			8	
Cattle	4	2		6	1	7	12					
Dogs	665	80	11	574	98	67	130	1,179	21	80	23	
Donkeys						2						
Goats												
Horses	1	2		1		3						
Rats											1	
Sheep					2						1	
Skunk											1	
Squirrel											1	
Swine				150		38	27					

1,658 persons bitten (302 by rabid animals).

Heads examined: 350 positive, 3 unsatisfactory, 2 suspicious, 149 negative.

MISCELLANEOUS DISEASES

Actinomycosis: A disease of cattle transmissible to man. This condition in cattle usually occurs in the bones of the jaw. If given early attention it is amenable to treatment. During the year 3 cases were reported in 3 towns.

Anthrax: Not a case of anthrax has been reported during the year and no requests were received for preventive anthrax treatment.

Blackleg: No deaths from this disease have been reported this year.

The causative agent of this disease is found to infect premises in which the disease has previously occurred. The disease is found usually in cattle under two and one half to three years of age and is generally fatal. Preventive treatment if given before infection occurs is nearly 100 percent effective, the acquired immunity protecting the animal for about one year. If preventive treatment is applied cattle may be pastured in infected pastures without danger of contracting the disease. During the year preventive treatment was given to 748 animals on 81 farms in 34 towns.

Glanders: One positive case of glanders was reported during the year, this case was revealed as a result of a mallein test, and post-mortem examination confirmed the diagnosis. Twenty-five horses were reported as showing symptoms indicating glanders, 24 of which proved not to be affected with that disease. Twenty samples of blood were taken from 18 of the 25 animals reported, and 19 ophthalmic tests were applied to 16 of the animals. Order No. 36 under which it is required that a permit accompany all horses shipped into Massachusetts from New York, New Jersey, Rhode Island and Connecticut still remains in force. During the year 1,297 horses arrived from the states referred to on permit, only 1 of which was held in quarantine for test, and the test proving negative this horse was later released.

Infectious abortion: That this disease is widely distributed throughout the herds in this State is a recognized fact. Easily conveyed from herd to herd and highly contagious in character owners of valuable herds are becoming more and more interested in the development of some plan by which the further spread may be prevented and the disease itself eradicated from herds already affected. Steps are under consideration for the establishment of an abortion-free accredited herd plan whereby all cattle reacting to laboratory tests for abortion must be removed from the herd and either kept under quarantine or slaughtered. The activities of this division are now limited to the examination of samples of blood submitted for that purpose. During the year 286 samples were received, 83 of which were diagnosed as positive.

Mange: Mange in cattle was reported on 4 premises, 25 head were affected. These cattle were placed in quarantine and the owner advised as to treatment. All of the affected animals recovered and were released.

Tuberculosis in swine: During the year 13 cases of this disease were reported, all of which were discovered at time of slaughter. Disinfection of the premises from which the swine originated was required and a physical examination made of the cattle maintained on said premises.

LABORATORY SERVICE

The laboratory of the State Department of Public Health has rendered valuable service in the examination of specimens submitted for that purpose. During the year the brains of 474 dogs, 17 cats, 6 cattle, 3 horses, 1 pig, 1 rat, 1 squirrel and 1 skunk were examined for rabies. Twenty samples of blood for glanders; 286 samples of blood for infectious abortion. Seven specimens were examined for anthrax; 1 specimen for black-leg; 12 specimens for hemorrhagic septicemia; 3 specimens for tuberculosis and 7 specimens for miscellaneous diseases.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

Under the provisions of Section 19, Chapter 129 of the General Laws, an order was issued by the Director on December 10, 1926, to every inspector of animals in the cities and towns of the Commonwealth calling for an inspection of all cattle, sheep, and swine, and of the premises where kept.

This order called for the completion of the inspection by February 15, and for a report of the same to be promptly forwarded to the Division's office. The inspectors' reports came forward in most instances in good season and were duly examined and tabulated in minute detail.

These reports constitute a "census" of the cattle, sheep and swine on 25,834 farms or premises in the State where these species of animals are kept. From these reports the following facts are gathered:—

The number of cattle of all kinds has decreased from the 1926 record of 192,777 to 185,147—a decrease of 7,630 head, or 4%.

The number of swine reported by local inspectors of animals this year was 80,280, an increase of 10,218 or 12½%.

The number of sheep reported was 10,747.

Meetings of local town and city inspectors were called in April for conference with Division officials.

These meetings were held in Greenfield, Pittsfield, Springfield, Worcester and Boston, and a fairly large number of inspectors attended.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 138 Acts of 1927	\$3,500.00
Expended during the year for the salary of the Director	3,500.00
Appropriation for personal services of clerks and stenographers, chapter 138, Acts of 1927	10,690.00
Expended during the year for personal serv- ices of clerks and stenographers	\$10,537.00
Unexpended balance	153.00
	\$10,690.00

Appropriation for services, other than personal including printing the annual report, travel- ing expenses of the Director, and office sup- plies and equipment, chapter 138, Acts of 1927	\$4,300.00
Transferred from Appropriation for Extraord- inary Expenses	350.00
Total amount appropriated	\$4,650.00

Expended during the year for the following purposes:	
Books and maps	\$52.12
Express and messenger service	386.04
Postage	935.20
Printing report	47.28
Other printing	972.86
Telephone and telegrams	773.70
Stationery and office supplies	670.11
Expenses of the Director	752.04
Total expenditure	\$4,589.35
Unexpended balance	60.65
	\$4,650.00

Appropriation for personal services of veterina- rians and agents engaged in the work of ex- termination of contagious diseases among domestic animals, chapter 138, Acts of 1927	\$48,500.00
Brought forward from 1926 Appropriation	5.00
Transferred from Appropriation for Extraord- inary Expenses	1,650.00
Total amount appropriated	\$50,155.00

Expended during the year for the following purposes:

Services of salaried agents	\$35,438.31
Services of per diem agents	14,184.50
Labor hired	104.00
Total expenditure	\$49,726.81
Unexpended balance	428.19

\$50,155.00

Appropriation for the traveling expenses of veterinarians and agents, chapter 138, Acts of 1927

Brought forward from 1926 Appropriation	\$25,000.00
Total amount appropriated	26.86

\$25,026.86

Expended during the year for the following purposes:

Traveling expenses of regular agents	\$13,856.41
Traveling expenses of per diem agents	6,732.91
Total expenditure	\$20,589.32
Unexpended balance	4,437.54

\$25,026.86

Appropriation for reimbursement of owners of horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, chapter 138, Acts of 1927

6,000.00

Expended during the year for the following purposes:

2 horses condemned and killed on account of glanders (1926)	\$185.00
Supplies for veterinary inspectors	225.99
Laundry	393.42
Antiseptics, biologics and disinfectants	224.18
Thermometers, needles, syringes, etc.	445.31
Ear-tags, punches, chains, etc.	2,645.19
Expenses of killing and burial	118.91
Expenses of Travel allowed inspectors of animals	674.37
Quarantine expenses	772.05
Sundries	36.75
Total expenditure	\$5,721.17
Unexpended balance	278.83

\$6,000.00

Appropriation for reimbursement of owners of cattle killed as authorized by chapter 304, Acts of 1924, and chapter 129, General Laws, as amended by chapter 353, Acts of 1922, during present and previous years, chapter 138, Acts of 1927

\$165,000.00

Brought forward from 1926 Appropriation	44,597.82

Total amount appropriated	\$209,597.82
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Expended during the year for the following:	
5,107 head of cattle killed in 1926 and 1927 (chapter 353, Acts of 1922)	\$135,116.96
308 head of cattle killed (physical cases includ- ing no lesion cases)	7,828.43
Total expenditure	\$142,945.39
Unexpended balance	66,652.43
	\$209,597.82

The average amount paid for condemned tuberculous cattle for the year was \$24.23.

The average amount paid for cattle slaughtered under the provisions of Chapter 353, Acts of 1922 and Chapter 335, Acts of 1927, was \$46.13 for registered purebred cattle and \$22.92 for grade cattle.

Forty-six claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$1,150.

One hundred and sixty-eight unpaid claims covering 661 cattle, to which provisions of Chapter 353, Acts of 1922 and Chapter 335, Acts of 1927, apply, remain unpaid, amounting to \$17,842.

There has been received during the year from the sale of hides and carcasses of condemned animals \$22.80; for refund of amount paid for repairs on State-owned car injured in accident \$19.97.

Respectfully submitted,

FRANK B. CUMMINGS, *Director.*

APPENDIX

The following graphs show the work of the Division of Animal Industry in control of the principal contagious diseases of animals for a period of years.

HOG CHOLERA CONTROL : INOCULATIONS.

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

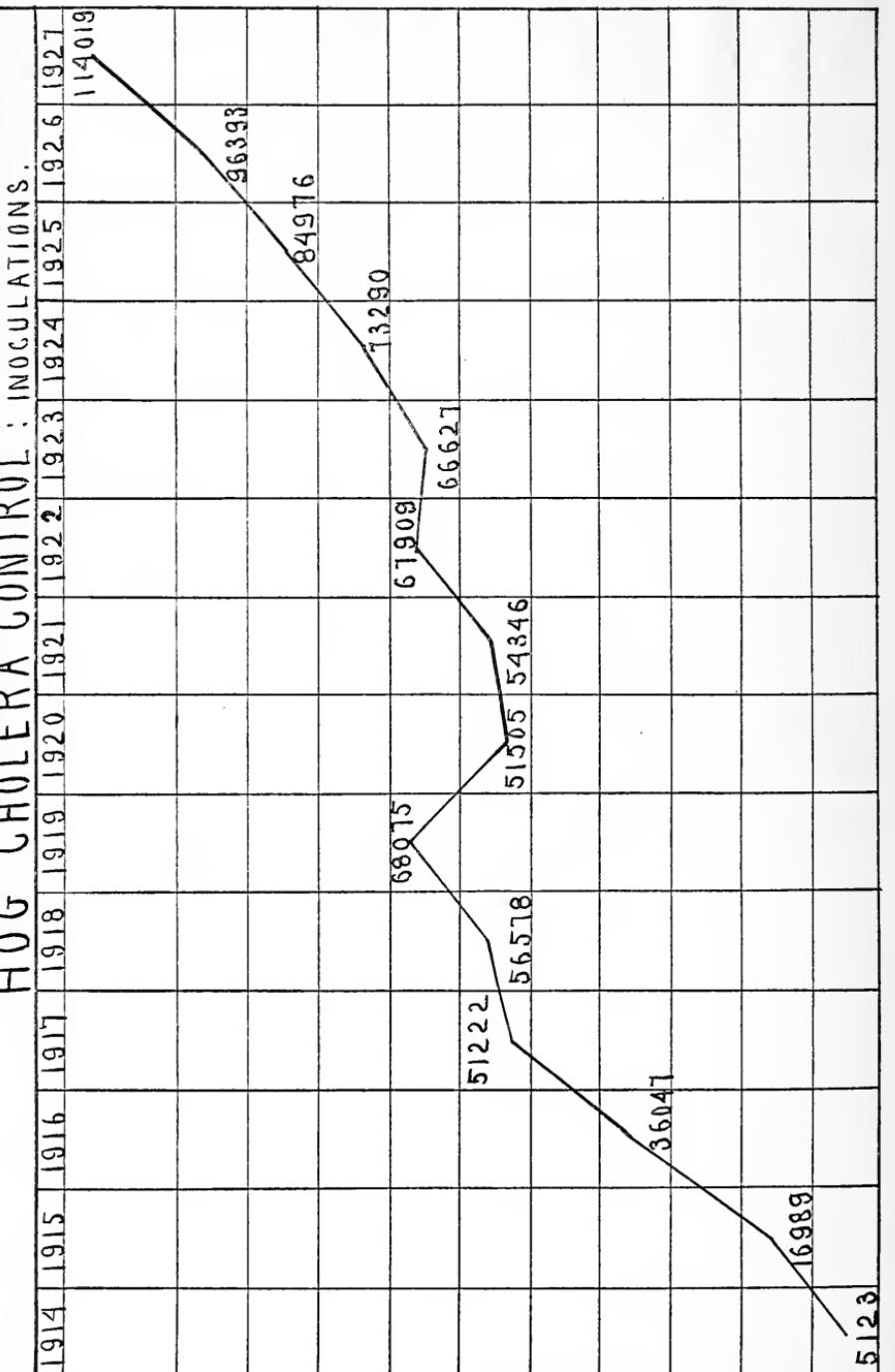
1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

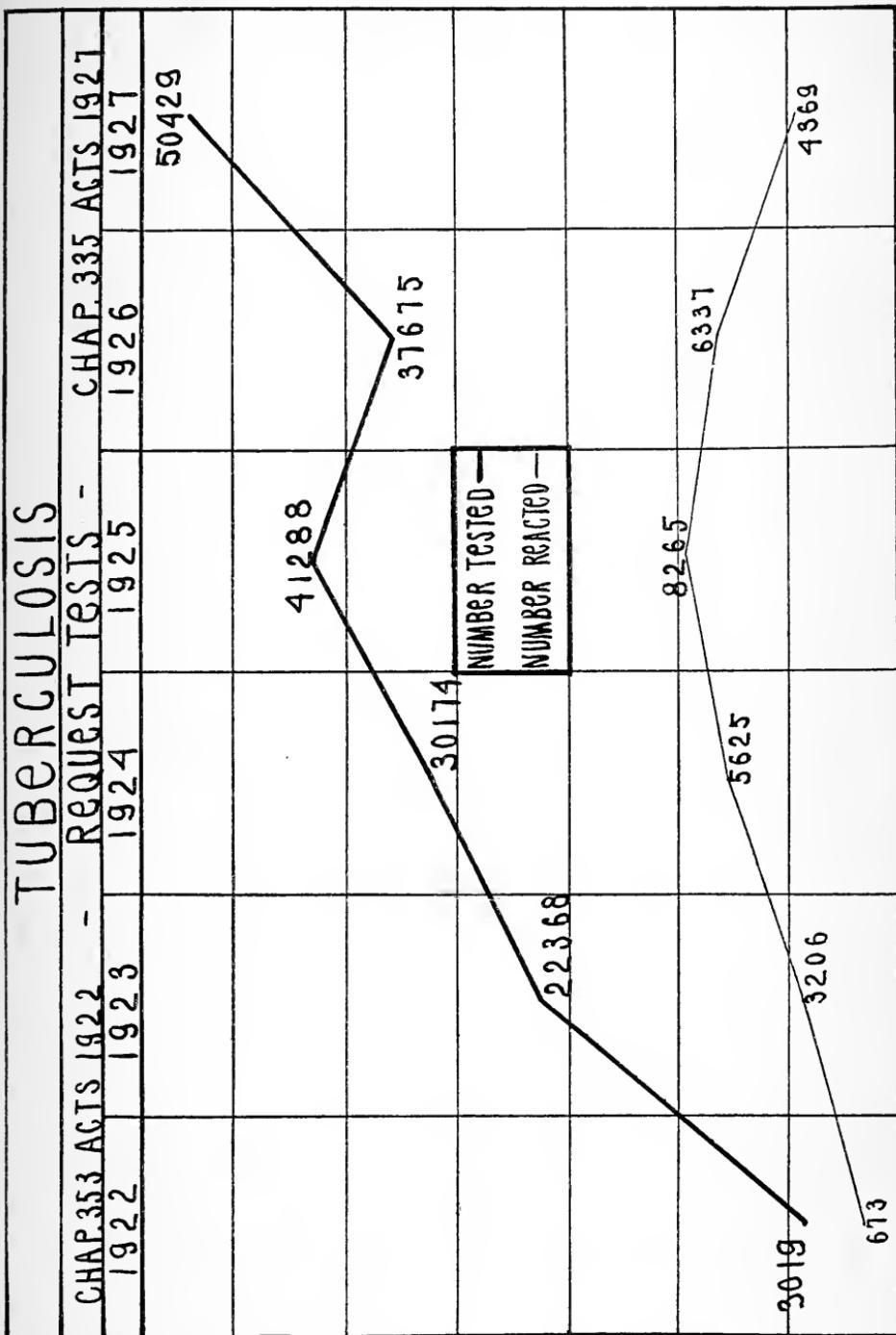
1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

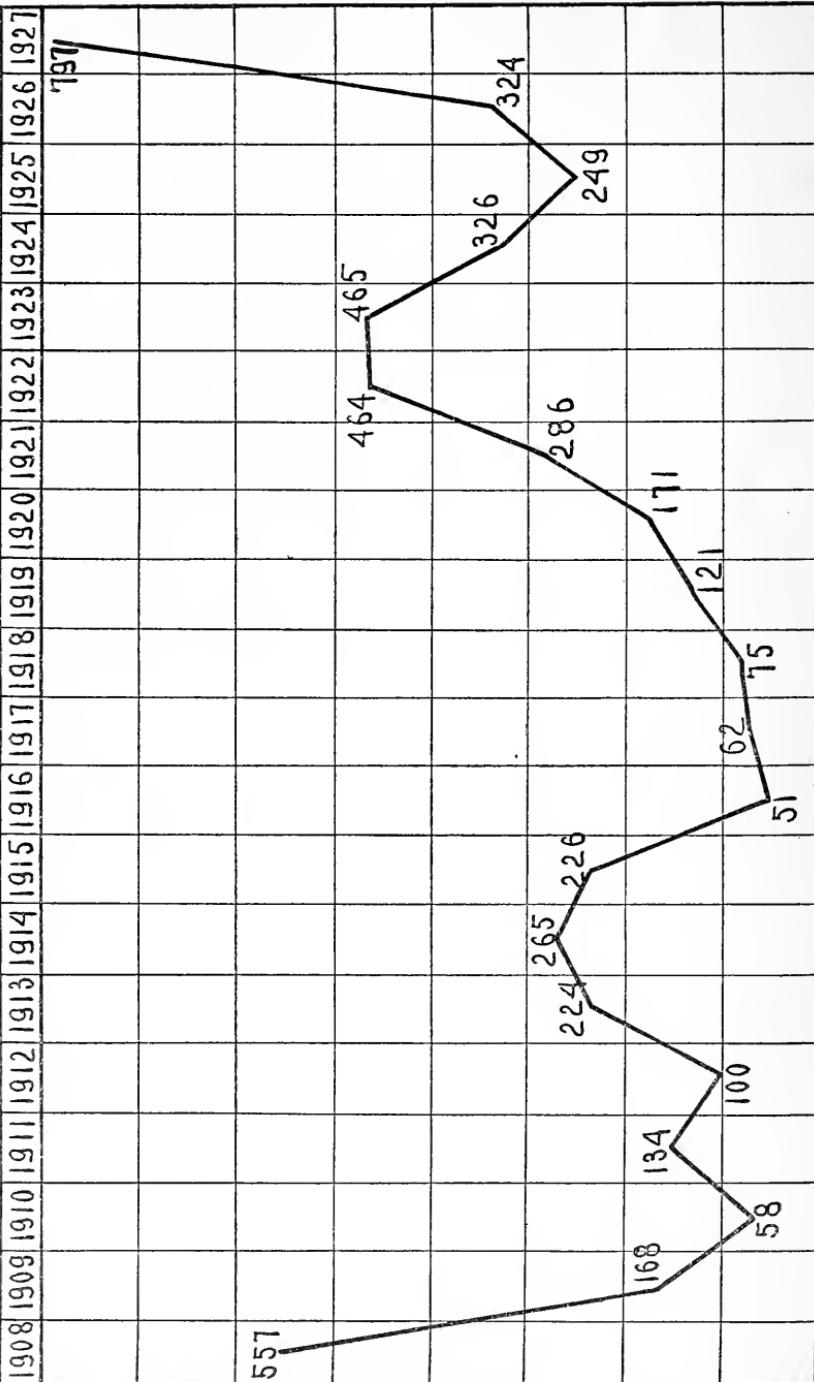
1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927





R A B I E S







The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1928



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The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY
BOSTON, NOVEMBER 30, 1928

To the Commissioner of Conservation:

The report of the work of this Division for the year ending November 30, 1928, is respectfully submitted. Mr. Frank B. Cummings resigned as Director to take effect on June 1, 1928. He was appointed to this office on November 6, 1926, and though serving in this capacity a short period of about nineteen months he made a record of efficiency, and by his outstanding work has made possible a revival of interest all over the State in the tuberculin test.

On June first, 1928, Evan F. Richardson of Millis was appointed by the Governor and Council to succeed Mr. Frank B. Cummings as Director of the Division of Animal Industry.

BOVINE TUBERCULOSIS

The work in connection with the eradication of tuberculosis in cattle is the most important activity of this Division. The natural increase in tuberculin testing which might have been expected did not wholly materialize, as many of the cattle owners who decided to come under State and Federal supervision have delayed applying for tests in order to take advantage of the increased indemnity which will go into effect on December 1st, 1928. A large number of requests are now on file, and indications are that we shall make a great stride forward this coming year.

The so-called Area Test Bill (Chapter 335, Acts of 1927), approved April 27, 1927, gives authority as follows:

"Section 33-B. Whenever not less than eighty-five per centum of the cattle permanently kept in a town are, upon application of their owners, being tested for bovine tuberculosis under the supervision of the director, the director may apply the same test to all other cattle in such town."

The power thus invested in the Director has never been invoked because it was felt that this procedure would work an injustice to the cattle owners until such time as a larger indemnity (comparable to that allowed by other states) had been provided.

The majority of the states of the Union exercise quarantine authority, but this authority has not thus far been granted this Division. Efficient progress in a clean-up program for tuberculosis eradication as applied to towns, districts, or counties, is, however, greatly retarded without it, and I am therefore recommending to the incoming legislature quarantine authority in connection with this work.

For convenience the record of the work on tuberculosis eradication is divided into three classes.

(1) *The examination of cattle reported as showing physical symptoms of disease.*

The work of the department in connection with this classification is authorized under Chapter 129 Section 29 (requiring report of the existence of contagious disease in domestic animals), Section 11 (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

The following tabulation shows disposition made of 302 head of cattle quarantined or reported under this section of the work:

	CONDEMNED Lesions found	No Lesions found	*PERMIT TO KILL Lesions found	No Lesions found	DIED	RELEASED	FORWARD
FORWARD FROM YEAR 1927	4		1				
1927							
DECEMBER	10				3	9	
1928							
JANUARY	36	3	1		1	13	
FEBRUARY	26	1	2		1	11	
MARCH	17				1	6	
APRIL	15	1	2		2	5	
MAY	8	2		1	1	6	
JUNE	13			1	3	9	
JULY	12		1		4	5	
AUGUST	7					2	
SEPTEMBER	13					4	
OCTOBER	8	1		1	2	4	
NOVEMBER	18				2	1	
INCOMPLETE							2
TOTAL	187	8	7	3	20	75	2

* In case of doubt as to the unhealthy appearance of an animal being due to tuberculosis, the owner is given the right to have it slaughtered, payment to be allowed only if tuberculosis is found present.

(2) *The tuberculin testing of cattle.*

Section 32, Chapter 129, General Laws, relative to the use of tuberculin and Chapter 353, Acts of 1922 the so-called "Request Test Law," were amended by Chapter 335, Acts of 1927.

The following tables are a record of the work accomplished in the testing of cattle at request of owner:

TUBERCULIN TESTS BY MONTHS										Comparison Year 1927				
	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Total	
FIRST Test	60	80	28	40	54	69	52	31	26	21	17	347	825	
Herds	524	845	286	499	653	483	501	163	205	105	125	1,058	5,447	
Head	174	218	73	93	83	159	130	39	85	28	16	167	1,265	
Reacted .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23.2%
SECOND Test	60	51	45	45	55	65	53	62	31	52	42	141	702	
Herds	871	763	577	675	502	606	391	396	448	510	420	553	5,185	
Head	80	33	45	53	26	24	3	14	23	11	14	6	403	
Reacted .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.7%
THIRD OR MORE Tests	136	105	131	103	80	115	91	96	95	94	110	210	1,366	
Herds	3,016	2,086	2,270	2,421	2,872	3,316	1,513	1,652	1,834	3,440	3,221	29,491	1,116	
Head	129	140	184	307	146	183	108	84	67	96	94	86	25,593	
Reacted .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,2%
Accredited	69	57	52	32	66	33	18	20	25	25	44	158	599	
Herds	1,307	1,467	952	1,035	1,872	849	412	283	524	350	1,502	2,348	12,901	
Head	23	50	17	16	15	15	4	4	3	0	3	28	178	
Reacted .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.7%
TOTAL	325	293	256	220	255	282	214	209	177	192	213	856	3,492	
Herds	5,718	5,161	4,085	4,630	5,839	5,254	2,817	2,494	3,011	2,815	5,587	7,180	50,129	
Head	406	441	319	469	270	381	245	141	178	135	127	287	3,399	
Reacted .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.6%
Pure Breds										19,060	700	Reacted	3.6%	
Grades										35,591	Tested	2,699	Reacted	7.5%

TUBERCULIN TESTS: Recapitulation by Counties

		Barnstable	Bristol	Cape Cod	Franklin	Hampshire	Middlesex	Nantucket	Plymouth	Suffolk	Worcester
FIRST TEST											
Herd	341	202	6	49	15	20	38	49	0	29	36
Head	801	2,227	62	499	136	147	203	471	0	168	141
Reacted	73	420	6	260	13	31	27	195	0	46	39
SECOND TEST											
Herd	107	122	7	1	28	27	82	162	53	41	29
Head	309	1,809	117	16	279	342	603	1,607	750	94	215
Reacted	4	119	4	0	20	15	25	7	77	26	10
THIRD OR MORE TEST											
Herd	108	225	24	6	48	32	54	57	238	135	180
Head	493	5,898	525	51	1,882	1,142	847	1,447	5,101	4,303	2,611
Reacted	30	366	20	0	59	69	15	49	352	0	248
ACCREDITED											
Herd	83	98	27	18	25	59	44	31	35	0	37
Head	475	2,021	1,107	181	542	1,841	845	785	868	948	949
Reacted	7	37	7	1	3	1	0	9	12	0	4
TOTAL											
Herd	639	1,647	64	32	150	133	200	278	375	220	287
Head	2,084	11,865	1,811	293	3,202	3,461	2,442	4,012	7,190	3,902	3,14
Reacted	114	942	37	3	342	98	71	92	636	26	308
Percentage reactors											
First Test	9.1	18.8	9.6	4.4	52.1	9.5	21.	13.3	41.4	29.1	27.6
All retests	3.2	5.4	1.7	.4	3.	2.5	1.7	1.6	6.5	11.3	5.2

COUNTY STATISTICS

	CATTLE CENSUS UNDER TEST				ONE CLEAN TEST		2 CLEAN TESTS		ACCREDITED	
	Herds	Head	Herds	%	Head	%	Herds	Head	Herds	Head
Barnstable	694	2,060	628	90	1,957	95	308	606	112	175
Berkshire	2,101	19,812	517	24	7,868	39	230	2,653	33	163
Bristol	2,623	19,426	57	2	1,720	8	9	189	4	24
Dukes	168	772	46	27	344	44	15	106	4	7
Essex	1,556	13,528	123	7	2,139	15	47	617	13	131
Franklin	2,090	16,742	99	4	2,418	14	17	265	10	89
Hampden	1,892	12,299	197	10	2,309	18	43	550	26	67
Hampshire	2,005	15,578	283	14	4,256	27	85	1,127	32	219
Middlesex	2,836	22,593	262	9	3,837	16	71	1,128	50	484
Nantucket	42	525	7	16	203	38	5	181	1	3
Norfolk	1,406	9,108	235	16	3,214	35	63	1,107	48	157
Plymouth	2,064	9,710	289	14	2,964	30	64	507	48	165
Suffolk	59	408	12	20	92	22	3	53	2	25
Worcester.....	5,198	42,563	293	5	6,446	15	64	1,283	31	114
Total.....	24,734	185,124	3,048	12	39,766	21	1,024	10,372	414	1,823
										1,183
										18,895

The above figures indicate:

An increase of 576 herds under test	2,472	3,048
An increase of 8,111 cattle under test.....	31,655	39,766
An increase of 632 herds no reactors last test	1,989	2,621
An increase of 6,133 cattle no reactors last test	24,957	31,090
An increase of 561 herds accredited	622	1,183
An increase of 5,944 cattle accredited.....	12,951	18,895

The table below shows statistics on testing as a result of a drive put on by Health Officials in Barnstable County in November.

BARNSTABLE COUNTY STATISTICS

Towns	CATTLE HERDS	CENSUS HEAD	UNDER HERDS	TEST HEAD	1 CLEAN HERDS	TEST HEAD	2 CLEAN HERDS	TESTS HEAD	ACCREDITED HERDS	HEAD
Barnstable	148	431	122	378	43	67	27	48	39	148
Bourne	39	98	26	83	12	48	7	10	4	20
Brewster	46	87	25	60	7	9	8	13	10	38
Chatham	28	70	29	70	15	28	4	4	6	19
Dennis	57	124	54	122	15	23	16	18	16	56
Eastham	33	69	34	72	13	24	10	13	11	35
Falmouth.....	123	496	163	537	143	232	1	6	3	87
Harwich	34	112	16	62	9	9				
Mashpee	5	6	5	4	2	2	2	2		
Orleans	31	77	26	85	5	6	10	11	11	68
Provincetown	9	28	8	39	1	11	2	6	5	22
Sandwich	49	190	45	225	25	86	4	4	13	98
Truro	34	101	33	105	6	23	12	15	14	57
Wellfleet	22	64								
Yarmouth	36	107	42	115	12	38	9	25	13	37
Total	694	2,060	628	1,957	308	606	112	175	145	685

The average salvage received by owners of reacting cattle for this year was \$45.17 as compared with \$34.96 in 1927.

The Brighton Market handles from two to three hundred milking cows weekly, and for that reason it has been given considerable attention in order that the purchasers of dairy cows in this market may be assured of obtaining the kind of cows they require. A white certificate is given on cattle from accredited herds, modified accredited areas, and clean herds under supervision, which entitles them to enter herds tested under State supervision. A pink certificate is given on cattle not included in these classifications, and these cattle should not be added to tested herds.

On recommendation of this Division, the Governor and Council approved an order dated October 2, 1928, which reads as follows:

Order No. 40

Boston, October 2, 1928.

ORDER (REGULATION) RELATIVE TO CARS, TRUCKS OR VEHICLES IN WHICH REACTING CATTLE HAVE BEEN SHIPPED OR TRANSPORTED.

Section I. Cattle which have reacted to a tuberculin test shall not be shipped, transported or moved within the Commonwealth in cars, trucks or vehicles of any kind containing healthy cattle unless all the animals are for immediate slaughter, or unless the reacting cattle are separated from the other animals by a wooden partition which shall be securely affixed to the walls of the car, truck or vehicle.

Section II. All cars, trucks, or other vehicles in which reacting cattle have been shipped, transported or moved, and which are within the Commonwealth when unloaded shall before being used again be thoroughly cleaned and disinfected by removing all litter and manure from all portions of such car, truck or vehicle and saturating the entire interior surface thereof with an approved disinfectant.

This Order shall be published by posting a copy of same in a conspicuous place at the public stock yards at Boston and the quarantine stations at Boston and Somerville, and by the Inspectors of Animals in each city and town in the Commonwealth by filing a copy hereof with the City Clerk or Town Clerk as the case may be and by posting a copy hereof in a conspicuous public place within the city or town for which he is the Inspector of Animals.

EVAN F. RICHARDSON,
Director of Animal Industry.

Approved:

W. A. L. BAZELEY,

Commissioner of Conservation.

Approved in Council: October 17, 1928.

WILLIAM L. REED,

Executive Secretary.

Since this order was put into effect all trucks taking reactors to the Brighton Stock Yards have been thoroughly cleansed and disinfected before leaving the yards. This method is employed as a safeguard to prevent if possible the spread of bovine tuberculosis to dairy cows taken out of this market.

During the year there were received at the quarantine station 2,716 head of Massachusetts cattle intended for dairy purposes. Two thousand six hundred eighty-four (2,684) were accepted on records of test made prior to shipment; 32 were held and submitted to test of which number 16, or 50%, reacted.

(3) *Supervision of the Interstate movement of cattle into Massachusetts.*

Following is a record of cattle received at the Quarantine Station at Brighton:

Released on approved certificate of health	Held and Tested
66 Canada	
6,863 Maine	36 1 reacted
2,901 New Hampshire	16
413 New York	4
1 Rhode Island	
2,227 Vermont	44 6 reacted
<hr/> 12,471	<hr/> 100 7 (or 7% reacted)

Total receipts, 12,571 head

Compared with 11,259 received in 1927 on papers, 656 held and tested, 63 or 9.6% reacted.

There were 12,143 dairy cattle received at other points on permit from the following states: Canada, 894; Connecticut, 443; Delaware, 1; Illinois, 16; Indiana, 22; Iowa, 17; Maine, 1,834; Maryland, 20; Michigan, 124; Minnesota, 125; New Hampshire, 1,930; New Jersey, 73; New York, 949; Ohio, 4; Pennsylvania, 14; Rhode Island, 216; South Carolina, 3; Virginia, 18; Vermont, 4,837; West Virginia, 1; Wisconsin, 602. One hundred forty-three (143) of this 12,143 were tested after arrival, 5 reacting. In addition to the dairy cattle there were received on permits 4,558 beef cattle and 1,334 cattle for exhibition purposes. This compares with 9,341 dairy cattle, 4,494 beef cattle and 1,213 cattle for exhibition purposes in 1927.

CONTAGIOUS DISEASES OF SWINE

The value of the immunization and treatment of swine in prevention of hog cholera and its allied diseases is indicated by the continued demand for this class of work.

This service is furnished without cost to swine owners—said owners, however, are required to pay for such biologics as are used. This material is billed direct to the owner by the manufacturer.

During the year 113,321 treatments were applied for hog cholera, and 33,442 treatments for hemorrhagic septicemia.

RABIES

Rabies in animals, which has increased from 324 positive cases in 1926 to 797 in 1927, still continues on its mad career, and we have had 862 cases in 1928. Two thousand one hundred eighty-five (2,185) dogs were reported to have bitten persons during this last year.

The recommendations dated November 30, 1927, referred to in the report of that year relative to the issuing of orders restraining all dogs for a period of ninety days in the seventy cities and towns in the Metropolitan district did not meet with the co-operation hoped for. The Selectmen of towns and Mayors of cities were sent the following communication in July, and I believe if they would exercise the authority they have been given by the statutes, the stray and un-owned dog, which is almost always responsible for this dangerous malady, would practically disappear.

July 11, 1928.

To Mayors of Cities and Chairmen of Selectmen of Towns:

Dear Sir:—

May I call your attention to the enclosed copy of statutes taken from the General Laws and ask your co-operation in the enforcement of same. I trust that you will pardon this suggestion of mine, coming as it does from one who has been in office only a few weeks, but who has since taking office been deeply concerned over the many and continuous reports of dog bites numbering 282 from June 1st to July 1st. Of course, upon investigation it is found that a very small percentage of this number are bites from dogs affected with rabies. However, owing to the injury sustained by a dog bite even if not from a rabid dog, and the fact that so many children and women having been once bitten by a dog are usually afraid of them thereafter, I feel that the public should be protected from the dog which is not licensed and the dog which is not properly cared for by the owner.

In view of these facts I am asking that particular stress be laid on these statutes in the hope that we may be able to co-operate with each other for the safety of the public.

Very truly yours,

EVAN F. RICHARDSON,
Director.

One dog affected with rabies this last year bit ten persons. Persons so bitten are exposed to a dread disease which may, unless they are given the Pasteur treatment, result in a horrible death.

Dynamite is handled with care and caution, and if the stray dog received the same attention, rabies would practically be eliminated.

Following is a report in detail for the year:

This record refers to the following animals:

Cats	10	3	6	4		10	1	39
Cattle	4							59
Dogs	760	47	37	587	70	46	73	1,938
Goats			1					1
Horses	1		2		1			4
Monkeys						1		1
Squirrels							1	1
Swine	36		12	19	1			68

2,498 persons bitten (240 by rabid animals)

549 heads examined: 375 positive, 13 unsatisfactory, 3 suspicious, 158 negative.

MISCELLANEOUS DISEASES

Actinomycosis: Nine head of cattle were reported for this condition. On examination 4 proved to have the disease and 5 were released.

Anthrax: This disease has not been reported this year.

Blackleg: Two deaths were reported in cattle. As in previous years, preventive treatment is applied by agents of the division on request of cattle owners. This service is provided without cost. During the year the treatment was applied to 885 animals on 99 farms in 39 towns.

Glanders: Forty-five horses were examined. Nine horses were found to be affected with glanders and were condemned and killed. Thirty-six proved negative to tests and were released. Six of the nine positive cases, although found in three different localities, were all traced to one stable. Forty-three samples of blood were taken for laboratory examination. Twenty-three ophthalmic tests were applied. On October 17, the order requiring permits to accompany horses from New York, New Jersey, Rhode Island and Connecticut was rescinded. This Division has never required permits from other states. Prior to that date, 1,100 horses arrived on permit.

Infectious Abortion: Blood submitted for examination for this disease is examined without cost to owners of cattle. Eight hundred thirty-four (834) bloods were examined, 267 of which indicated presence of infectious abortion.

Mange: This disease was reported on three premises. Ten animals were affected. Advice regarding treatment was given and all cattle recovered and were released.

Tuberculosis in Swine: Seventeen hogs found affected with tuberculosis at time of slaughter were reported and owners were advised regarding disinfection of premises.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of premises where kept was issued December 10, 1927, calling for completion of the inspection on or before February 15, 1928.

From the reports received from the Inspectors of Animals of all cities and towns in the Commonwealth, there were inspected on 24,734 premises: 185,124 head of cattle, 9,692 sheep, 86,563 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Greenfield, Hyannis, Pittsfield, Springfield, and Worcester. These meetings were well attended and it is believed resulted in improvement in the service rendered by the Inspectors.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 127 Acts of 1928	\$3,500.00
Expended during the year for the salary of the Director	3,500.00
Appropriation for personal services of clerks and stenographers, chapter 127, Acts of 1928	\$11,800.00
Transferred from Appropriation for Extraordinary Expenses	160.00
Total amount appropriated	\$11,960.00

Expended during the year for personal services of clerks and stenographers	\$11,958.08
Unexpended balance	1.92
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	\$11,960.00
Appropriation for services, other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 127, Acts of 1928	\$5,000.00
Expended during the year for the following purposes:	
Books and maps	\$64.50
Express and messenger service	410.27
Postage	991.80
Printing report	58.72
Other printing	706.27
Telephone and telegrams	676.92
Stationery and office supplies	1,252.31
Expenses of the Director	830.64
	<hr/>
Total expenditure	\$4,991.43
Unexpended balance	8.57
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	\$5,000.00
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 127, Acts of 1928	\$50,400.00
Brought forward from 1927 Appropriation	10.00
	<hr/>
Total amount appropriated	\$50,410.00
Expended during the year for the following purposes:	
Services of salaried agents	\$35,546.50
Services of per diem agents	12,461.50
Labor hired	104.00
	<hr/>
Total expenditure	\$48,112.00
Unexpended balance	2,298.00
	<hr/>
	\$50,410.00
Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, chapter 127, Acts of 1928	\$21,000.00
Brought forward from 1927 Appropriation	17.72
	<hr/>
Total amount appropriated	\$21,017.72
Expended during the year for the following purposes:	
Traveling expenses of regular agents	\$14,337.60
Traveling expenses of per diem agents	5,985.11
	<hr/>
Total expenditure	\$20,322.71
Unexpended balance	695.01
	<hr/>
	\$21,017.72
Appropriation for reimbursement of owners of horses killed during the present and previous years, travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, chapter 127, Acts of 1928	\$6,000.00

Expended during the year for the following purposes:	
6 horses condemned and killed on account of glanders	\$300.00
Supplies for veterinary inspectors	347.62
Laundry	385.10
Antiseptics, biologics and disinfectants	203.75
Thermometers, needles, syringes, etc.	508.45
Ear-tags, punches, chains, etc.	1,989.28
Expenses of killing and burial	96.00
Expenses of travel allowed inspectors of animals	741.37
Quarantine expenses	1,233.25
Sundries	5.00
Total expenditure	\$5,809.82
Unexpended balance	190.18
	<u>\$6,000.00</u>

Appropriation for reimbursement of owners of tubercular cattle killed, as authorized by section twelve A of chapter 129 of the General Laws, inserted by section 1 of chapter 304 of the Acts of 1924, and in accordance with certain provisions of law and agreements made under authority of section 33 of chapter 129 of the General Laws, as amended, during the present and previous years, chapter 127, Acts. of 1928	\$100,000.00
Brought forward from 1927 appropriation	66,652.43
	<u>\$166,652.43</u>
Total amount appropriated	\$166,652.43
Expended during the year for the following:	
3,674 head of cattle killed (Chapter 129, General Laws as amended)	\$99,439.45
185 head of cattle killed (physical cases, including no lesion cases)	4,759.54
Total expenditure	\$104,198.99
Unexpended balance	<u>62,453.44</u>
	<u>\$166,652.43</u>

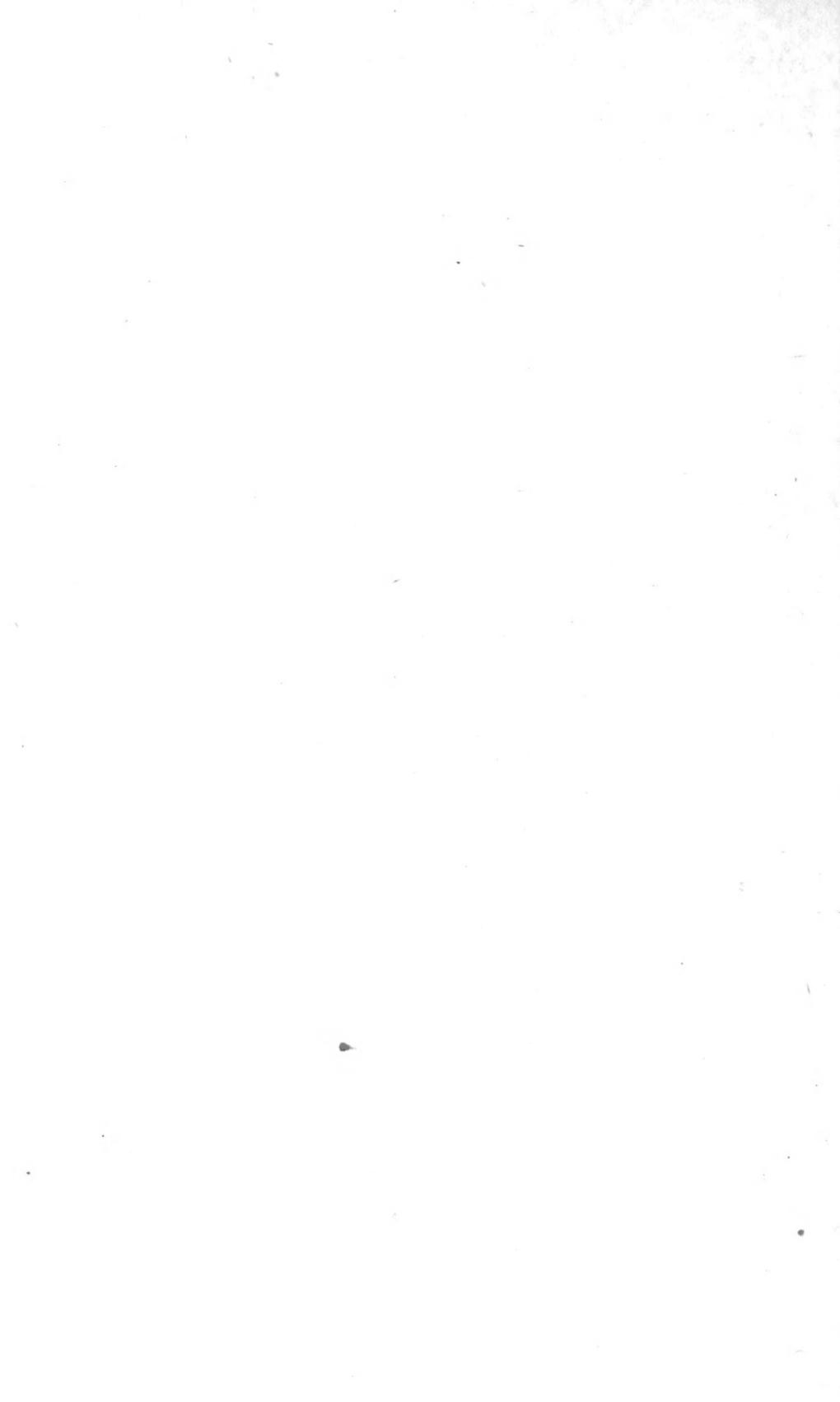
The average amount paid for cattle slaughtered under the provisions of Chapter 353, Acts of 1922 and Chapter 335, Acts of 1927, was \$43.84 for registered purebred cattle and \$23.47 for grade cattle.

Sixteen claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$400.

One hundred seventy-seven (177) unpaid claims covering 497 cattle, to which provisions of Chapter 353, Acts of 1922 and Chapter 335, Acts of 1927, apply, remain unpaid, amounting to \$21,039.29.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$67; for refund of amount paid for repairs on State-owned car injured in accident \$26.95; for refund received on account of expenses of 1927, \$16.05.

Respectfully submitted,
EVAN F. RICHARDSON, *Director.*



The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE -

YEAR ENDING NOVEMBER 30, 1929



MASS.
DOCS.
COLL.

The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY
Boston, November 30, 1929.

To the Commissioner of Conservation:

The report of the work of this Division for the year ending November 30, 1929, is respectfully submitted.

BOVINE TUBERCULOSIS

Eradication of bovine tuberculosis in cattle is the most important activity of this Division. Work commenced with a rush last December as the result of two drives put on by the Health Unit of Barnstable County and the Hood Milk Company of Boston in Franklin County, and since that time the applications for tests have been coming in to this office in an increasing number from all over the State.

The total number of tests in 1928 was 54,651, and in 1929, 92,773. The cattle under supervision have increased by 18,279, making a total at the end of this year of 58,045 under test.

Barnstable County was declared a modified accredited area on June 13, 1929, and as the Legislature of this year gave special quarantine authority applying to that County, such authority was exercised under rules and regulations approved by the Governor and Council, and these rules and regulations were put into effect on October 23, 1929.

We have at the end of this year twenty-seven towns that are over 85% under supervision and are eligible for action in accordance with the following section:

"Section 33B. Whenever not less than eighty-five per centum of the cattle permanently kept in a town are, upon application of their owners, being tested for bovine tuberculosis under the supervision of the director, the director may apply the same test to all other cattle in such town."

Requests from the Boards of Health of several of these towns have been made for the operation of this law, and some towns have already been cleaned up under its supervision.

For convenience the record of the work on tuberculosis eradication is divided into three classes:

(1) THE EXAMINATION OF CATTLE REPORTED AS SHOWING PHYSICAL SYMPTOMS OF DISEASE.

The work of the department in connection with this classification is authorized under Chapter 129, Section 29 (requiring report of the existence of contagious disease in domestic animals), Section 11 (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

During the year there has been reported 307 head of cattle included in this classification. Of this number 211 were examined physically, condemned and killed, 198 proving to be affected with tuberculosis and 13 showing no lesions of that disease. On 7 animals a so-called "permit to

"kill" was granted as there was a doubt on physical examination as to whether the condition of the animal was due to tuberculosis or not. Five of these 7 animals proved to have tuberculosis and 2 proved to be affected with some other condition. Twenty-one animals reported, died prior to being examined. Sixty-four animals were released as physical examination did not indicate tuberculosis. In the case of 4 animals no disposition was made, and these four cases have been carried forward for action next year.

(2) THE TUBERCULIN TESTING OF CATTLE.

Section 32, Chapter 129, General Laws, relative to the use of tuberculin and Chapter 353, Acts of 1922 the so-called "Request Test Law," were amended by Chapter 335, Acts of 1927 and Chapter 332, Acts of 1928.

The following tables are a record of the work accomplished in the testing of cattle at request of owner:

TUBERCULIN TESTS BY MONTHS
1929

1929
TUBERCULIN TESTS BY COUNTIES

	ACCREDITED										TOTAL						
	FIRST TEST			SECOND TEST			THIRD OR MORE			Head	Herds	Head	Reacted				
	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted					
Barnstable	.	.	146	342	21	918	23	208	1,394	30	132	632	4	861	3,286	78	
Berkshire	.	.	390	3,427	1,024	234	2,401	99	335	9,211	447	137	2,827	19	1,096	17,866	1,589
Bristol	.	.	13	241	108	10	178	10	39	1,379	90	33	1,286	8	95	3,084	216
Dukes	.	.	15	72	23	15	95	5	6	85	2	20	211	1	56	463	31
Essex	.	.	155	1,525	843	102	1,167	60	94	2,389	48	25	583	2	376	5,664	953
Franklin	.	.	605	7,759	1,144	219	3,322	109	101	2,258	53	54	1,637	7	979	14,976	1,313
Hampden	.	.	130	1,370	560	67	754	48	91	1,243	45	104	1,515	9	382	4,882	662
Hampshire	.	.	164	1,137	254	74	749	22	115	2,635	130	120	2,265	2	473	6,786	408
Middlesex	.	.	151	1,678	1,117	62	620	71	217	5,419	295	84	1,337	32	514	9,054	1,515
Nantucket	.	.	4	7	0				6	185	0	1	20	0	11	212	0
Norfolk	.	.	94	596	330	35	296	20	185	5,050	186	80	1,032	38	394	6,974	574
Plymouth	.	.	79	460	131	31	140	3	181	3,012	165	109	1,532	19	400	5,144	318
Suffolk	.	.	199	2,822	1,157	81	1,281	1	11	107	2	5	0	0	14	113	2
Worcester	.	.								6,199	111	145	3,966	32	627	14,268	1,372
Total	.	.	2,145	21,436	6,712	1,296	11,922	542	1,791	40,566	1,604	1,046	18,848	173	6,278	92,772	9,031

COUNTY STATISTICS

	CATTLE CENSUS		UNDER TEST			ONE CLEAN TEST		TWO CLEAN TESTS		ACCREDITED		
	Herds	Head	Herds	%	Head	%	Herds	Head	Herds	Head	Herds	Head
Barnstable .	656	2,064	689	100	2,213	100	61	98	471	1,161	145	648
Berkshire .	2,030	20,841	861	42	11,224	54	352	3,018	165	2,242	247	4,209
Bristol .	2,491	19,701	68	2	1,991	10	10	184	11	186	29	1,154
Dukes .	153	917	58	38	423	46	12	35	5	14	33	331
Essex .	1,589	13,979	260	16	3,323	23	124	1,316	40	471	51	1,139
Franklin .	1,987	17,957	679	54	9,311	52	584	6,090	24	325	78	2,196
Hampden .	1,926	12,873	306	15	3,328	25	103	823	38	291	134	1,952
Hampshire .	1,935	16,691	432	22	5,439	32	154	1,027	44	471	200	3,251
Middlesex .	2,751	22,423	378	13	4,912	21	119	1,467	68	895	109	1,674
Nantucket .	45	542	10	22	211	38	3	6			7	205
Norfolk .	1,315	9,183	302	23	3,730	40	100	1,295	55	746	101	1,153
Plymouth .	1,962	10,147	327	16	3,331	32	106	894	63	372	137	1,718
Suffolk .	45	293	10	22	64	21			4	8	4	43
Worcester .	5,126	45,595	468	9	8,545	19	139	1,892	63	1,175	176	4,286
Total .	24,011	193,206	4,848	21	58,045	30	1,817	18,145	1,051	8,357	1,451	23,959

The above figures indicate:

	1928	1929
An increase of 1,800 herds under test	3,048	4,848
An increase of 18,279 cattle under test	39,766	58,045
An increase of 1,698 herds no reactors last test	2,621	4,319
An increase of 19,371 cattle no reactors last test	31,090	50,461
An increase of 268 herds accredited	1,183	1,451
An increase of 5,064 cattle accredited	18,895	23,959

The average salvage received by owners of reacting cattle for this year was \$43.08 as compared with \$45.17 in 1928.

The Brighton Market handles about 15,000 dairy cows yearly and is by far the largest distributing point for replacements of any sales place in New England. The issuance of either a white or a pink certificate on each dairy cow leaving this market has been very helpful, as by that means the purchaser may know the status of the cattle he is buying. The ratio of the "pink slip" cows to "white slip" cows changed from the first of the year when 70% of the dairy cows were "pink slip" cows and 30% "white slip" cows; to 30% "pink slip" cows and 70% "white slip" cows during the latter part of the year. This change in the proportion of "white slip" cows or those from accredited herds, modified accredited areas, clean herds under supervision or cattle which have passed two recent clean tests sixty to ninety days apart over "pink slip" cows, which are not included in these classifications, is a true indication of the growth of interest in the tuberculin test. When cattle arrive at the barn Tuesday mornings for sale, these two classes of cows are kept separate.

Inoculation for the prevention of Brighton or Shipping Fever, so-called, is upon the arrival of the cattle at the Market given practically at cost to cattle whose owners desire same. This service is much appreciated by the Brighton dealers, and, we believe, prevents many fatalities from that disease.

During the year there were 482 trucks which delivered 1,872 reactor cattle at the Quarantine Station, and these trucks were cleaned and disinfected before leaving the yard. This was done in accordance with the requirements of rules and regulations which were adopted in the fall of 1928. The Brighton Stock Yards Company on April 1, 1929, put in operation a regulation that all trucks before taking dairy cows from the Brighton Market must be cleaned and disinfected. During the period from April 1 to December 1 there were 1809 trucks so cleaned and disinfected.

All these improvements in the method of handling cattle at the Brighton Market have been very helpful in raising the standard of that Market as a suitable place to buy dairy cows.

During the year there were received at the quarantine station 2,027 head of Massachusetts cattle intended for dairy purposes. Two thousand one (2001) were accepted on records of test made prior to shipment; 26 were held and submitted to test of which number 5 reacted.

(3) SUPERVISION OF THE INTERSTATE MOVEMENT OF CATTLE INTO MASSACHUSETTS.

Following is a record of cattle received at the Quarantine Station at Brighton:

Released on approved certificate of health	Held and Tested
6,246 Maine	2
2,812 New Hampshire	12
1,940 Vermont	13
449 New York	5
43 Wisconsin	0
12 Rhode Island	3 2 reacted
128 Canada	2
<hr/> 11,630	<hr/> 37 2
Total receipts 11,667 head	

Compared with 12,471 received in 1928 on papers, 100 held and tested, 7 or 7% reacted.

There were 14,829 dairy cattle received at other points on permit from the following states: Canada, 1,135; Connecticut, 766; Illinois, 50; Indiana, 61; Iowa, 121; Kansas, 42; Maine, 2,161; Maryland, 1; Michigan, 19; Minnesota, 69; Missouri, 57; New Hampshire, 1,633; New Jersey, 65; New York, 1,139; Ohio, 131; Oklahoma, 56; Pennsylvania, 11; Rhode Island, 176; Tennessee, 58; Texas, 37; Vermont, 5,964; Virginia, 1; Wisconsin, 1,076. Two hundred sixty-five (265) of this 14,829 were tested after arrival, 30 reacting. In addition to the dairy cattle there were received on permits 5,188 beef cattle, and 1,384 cattle for exhibition purposes. This compares with 12,143 dairy cattle, 4,558 beef cattle and 1,334 cattle for exhibition purposes in 1928.

RECEIPTS OF LIVESTOCK AT THE QUARANTINE STATIONS AT BRIGHTON AND SOMERVILLE

There were received at these stations during the year the following: 75,071 cattle; 120,987 calves; 263,777 sheep and lambs, and 736,804 swine.

CONTAGIOUS DISEASES OF SWINE

Service in connection with the immunization and treatment of swine in prevention of hog cholera and its allied diseases has been continued under the general plan employed during the past few years. This service is rendered without cost to such owners as apply, and who agree to comply with such regulations as are required by this Division. Owing to unusually favorable weather conditions during practically the entire year there has been a decided falling-off in the demand for treatment, as it is an undisputed fact that swine diseases are more prevalent in seasons in which there is a considerable amount of wet weather. During the year there were 93,199 treatments applied in connection with hog cholera, as compared with 113,321 treatments during the year 1928; and 23,514 treatments for hemorrhagic septicemia, as compared with 33,442 in 1928.

RABIES

There were 3,196 dogs reported to have bitten persons this year, and there were 618 dogs found to be affected with rabies, 244 less than last year. These figures are encouraging, and, we believe, indicate that local authorities are giving more attention to the enforcement of the dog

laws. In order that this Division should be as helpful as possible in handling this serious situation, the following letter was sent:

March 28, 1929.

To Mayors of Cities and Chairmen of Selectmen of Towns:

GENTLEMEN:—

The time is approaching for the relicensing of dogs and I wish to call your attention to the importance of enforcing all laws concerning dogs. The following facts in reference to the report of this Division for last year are startling and invite serious consideration.

During the year over 3,000 people were reported as bitten by dogs and 880 dogs affected with rabies died or were killed, an increase of almost 100 positive cases over the previous year. There were approximately 600 people who took the Pasteur treatment as the result of injuries inflicted by dogs involving an estimated expense of at least \$30,000.00.

Thus far this year the rabies situation has been more of a menace than ever. During last week there were reported three dogs affected with rabies which did considerable damage in Fitchburg, Wellesley and Needham. We find that a large number of the dogs affected with rabies are stray or ownerless dogs which would be entirely eliminated if the town and city authorities enforce the law in reference to the licensing of dogs.

May we invite your active cooperation in a matter that so deeply concerns the people of the Commonwealth of Massachusetts.

Very truly yours,

EVAN F. RICHARDSON,
Director.

Following is a report in detail for the year:

RABIES

	SHOWING SYMPTOMS			CONTACT			BITE CASES			Total					
	Positive	Negative	Questionable	Released	Killed or died— no symptoms of rabies	Killed positive	Disposal pending	Questionable	Negative	Released	Killed—no examination	Killed negative	Disposal pending		
Forward, year 1928 . . .															
December, 1928 . . .	45	7	—	73	22	2				117				190	
January, 1929 . . .	49	2	—	62	3	3				133	2	5		217	
February . . .	46	8	1	62	8	—				113	3	5		240	
March . . .	70	7	3	58	9	4				141	3	7		279	
April . . .	55	—	—	55	7	4				200	1	7		359	
May . . .	73	2	2	370	11	8				268	1	3		393	
June . . .	31	4	2	36	3	3				339	1	15		821	
July . . .	50	4	2	104	7	3				378	2	8		467	
August . . .	55	6	1	28	1	8				353	3	12		538	
September . . .	55	7	2	—	2	2				326	3	12		440	
October . . .	39	—	1	20	3	—				1	273	1	5		348
November . . .	50	3	1	—	1	9				256	5	3		327	
Forward . . .							166			225	5	1		295	
													134	300	
Total . . .	618	50	15	890	57	45	166	3	1	3,122	30	83	134	5,214	
1928 . . .	811	50	38	655	97	51	73	—	—	1,949	28	109	117	3,978	
	Total positive cases, 618														

The above record refers to the following animals:

Cats	9	3	20	8						23	1	8		72
Cattle	2	1	2	1										9
Dogs	605	47	12	555	48	40	166	3	1	3,097	29	74	134	4,811
Horses	1	—	3	—	2									7
Swine	1	1	310	—										312
Monkeys	—										2			2
Rat												1		1

3,196 dogs bit persons during the year 1929.

3,389 persons bitten (165 by rabid animals).

456 heads examined (313 positive, 133 negative, 10 questionable).

INFECTIOUS ABORTION: BANG BACILLUS DISEASE

Owing to the increasing number of states requiring that cattle shipped into their respective states must be accompanied by a certificate indicating the animal shipped to be free from Bang Bacillus Disease and the desire on the part of breeders and the owners of high grade cattle to establish disease-free herds there is a rapidly growing demand for service in connection with this disease.

During the fiscal year there were submitted to this Division 3,800 blood samples as compared with 834 received during the year 1928. Of this number 807 gave positive results, 654 were recorded as doubtful, 2,323 were declared negative and 16 were unfit for examination.

At present the laboratory reports are based on a dilution of from 1 to 30, 1 to 60, 1 to 120, 1 to 240. An animal is considered as affected with Bang Bacillus Disease if examination of blood shows positive on dilutions of 1 to 60 or higher; doubtful, if a dilution of 1 to 30 is positive but higher dilutions are negative; negative, if a positive result is not obtained in any dilution.

Service as rendered at this time by this Division is limited to the examination without expense to the owner of such samples of blood as are submitted and the furnishing of vials for the obtaining of such samples.

One State institution has succeeded during the year in establishing a Bang Bacillus Disease-Free herd by removing all animals giving positive results to examination of blood.

MISCELLANEOUS DISEASES

Actinomycosis:—Five head of cattle were reported for this condition, only one proving on examination to be affected with that disease. That animal was condemned and slaughtered. The other four animals were released from further observation.

Anthrax:—No deaths from this disease were reported. Two animals reported suspected of being affected were found upon examination not to have Anthrax.

Blackleg:—Service in connection with preventive treatment was furnished as in previous years, 745 animals having been given treatment on 75 farms in 38 towns.

Glanders:—One hundred seven horses were examined for glanders, four of which were found to have the disease and were killed. Two of these animals were detected from information obtained because of the owner contracting the disease, the horses proving on examination of blood to be affected. Bloods were taken from fifty-four horses in one stable in the city of Boston. Examination did not reveal presence of glanders. One hundred seventeen bloods were taken for laboratory examination and ninety-four ophthalmic tests were applied.

Mange:—This condition was reported on three premises, eleven animals being affected. Advice regarding treatment was given and animals upon recovery were released.

Tuberculosis in Swine:—Thirty-four head of swine found at time of slaughter to be affected with tuberculosis were reported and a careful physical examination made of all other livestock maintained on premises from which these hogs were derived. Instructions relative to cleansing and disinfecting of premises were given.

Other diseases, as Hodgkins Disease, Coli Bacillus Disease and Nodular Disease were reported and investigated.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of premises where kept was issued December 20, 1928, calling for completion of the inspection on or before March 1, 1929.

From the reports received from the Inspectors of Animals of all cities

and towns in the Commonwealth, there were inspected on 24,011 premises: 193,206 head of cattle, 8,228 sheep, 90,707 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Pittsfield, Springfield, and Worcester. These meetings were well attended and it is believed resulted in improvement in the service rendered by the Inspectors.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 146, Acts of 1929	\$3,500.00
Supplementary Budget, chapter 386, Acts of 1929	250.00
Total amount appropriated	\$3,750.00
Expended during the year for the salary of the Director	\$3,625.00
Unexpended balance	125.00
Appropriation for personal services of clerks and stenographers, chapter 146, Acts of 1929	\$13,500.00
Supplementary Budget, chapter 386, Acts of 1929	480.00
Total amount appropriated	\$13,980.00
Expended during the year for personal ser- vices of clerks and stenographers	\$13,977.17
Unexpended balance	2.83
Appropriation for services, other than person- al, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 146, Acts of 1929	\$6,000.00
Supplementary Budget, chapter 386, Acts of 1929	2,400.00
Total amount appropriated	\$8,400.00
Expended during the year for the following purposes:	
Books and Maps	\$56.25
Express and messenger service	349.10
Postage	1,681.21
Printing report	54.61
Other printing	803.21
Telephone and telegrams	1,034.96
Stationery and office supplies	2,529.56
Expenses of the Director	1,321.49
Total Expenditure	\$7,830.39
Unexpended balance	569.61
Appropriation for personal services of veteri- narians and agents engaged in the work of extermination of contagious diseases	\$8,400.00

among domestic animals, chapter 146, Acts of 1929	\$53,000.00
Transferred from Appropriation for Extra- ordinary Expenses	\$2,000.00
Brought forward from 1928 Appropriation	7.00
 Total amount appropriated	 <u>\$55,007.00</u>
Expended during the year for the following purposes:	
Services of salaried agents	\$36,601.90
Services of per diem agents	17,884.00
Labor hired	102.00
 Total expenditure	 <u>\$54,587.90</u>
Unexpended balance	419.10
 Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, chapter 146, Acts of 1929	 <u>\$55,007.00</u>
Transferred from Appropriation for Extra- ordinary Expenses	\$22,000.00
 Total amount appropriated	 <u>2,750.00</u>
Expended during the year for the following purposes:	
Traveling expenses of regular agents	\$15,579.48
Traveling expenses of per diem agents	8,755.31
 Total expenditure	 <u>\$24,334.79</u>
Unexpended balance	415.21
 Appropriation for reimbursement of owners of horses killed during the present and previ- ous years, travel, when allowed, of in- spectors of animals, incidental expenses of killing and burial, quarantine and emer- gency services and for laboratory and veterinary supplies and equipment, chap- ter 146, Acts of 1929	 <u>\$24,750.00</u>
Expenditure during the year for the following purposes:	
Supplies for veterinary inspectors	\$423.12
Laundry	390.28
Antiseptics, biologics and disinfectants	399.42
Thermometers, needles, syringes, etc.	495.86
Ear-tags, punches, chains, etc.	1,397.42
Expenses of killing and burial	156.00
Expenses of travel allowed inspectors of ani- mals	799.62
Quarantine expenses	962.00
Sundries	10.00
 Total expenditure	 <u>\$5,033.72</u>
Unexpended balance	 <u>1,266.28</u>
 Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, chapter 146, Acts of 1929	 <u>\$6,300.00</u>

Appropriation for reimbursement of owners of tubercular cattle killed, as authorized by section twelve A of chapter 129 of the General Laws, inserted by section 1 of chapter 304 of the Acts of 1924, and in accordance with certain provisions of law and agreements made under authority of section 33 of chapter 129 of the General Laws, as amended, during the present and previous years, chapter 146, Acts of 1929 Supplementary Budget, chapter 386, Acts of 1929	\$200,000.00
Brought forward from 1928 appropriation Transferred from Appropriation for Extra-ordinary Expenses	50,000.00 62,453.44 <hr/> 2,500.00
Total amount appropriated	<hr/> \$314,953.44
Expended during the year for the following:	
6,319 head of cattle killed (chapter 129, General Laws as amended)	\$310,475.10
171 head of cattle killed (physical cases, including no lesion cases)	4,453.63 <hr/>
Total expenditure	\$314,928.73
Unexpended balance	24.71 <hr/> \$314,953.44
Appropriation for expenses in connection with the Eastern States conference on tuberculosis eradication among cattle when held in this commonwealth, chapter 386, Acts of 1929	\$250.00
Expended for expenses of Conference	\$249.39
Unexpended Balance . . . . .	.61 <hr/> \$250.00

The average amount paid for cattle slaughtered under the provisions of Chapter 353, Acts of 1922, Chapter 335, Acts of 1927 and Chapter 332, Acts of 1928, was \$70.51 for registered purebred cattle and \$45.80 for grade cattle.

Thirty-eight claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$950.

Four hundred eighty-three (483) unpaid claims covering 2,920 cattle, to which provisions of Chapter 353, Acts of 1922 and Chapter 335, Acts of 1927, and Chapter 332, Acts of 1928, apply, remain unpaid, amounting to \$143,120.93.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$79; for sales of hides and carcasses \$61.40; Hemorrhagic Septicemia treatments at Brighton \$462.15.

Respectfully submitted,

EVAN F. RICHARDSON,
Director.

The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

YEAR ENDING NOVEMBER 30, 1930

Government Documents
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The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY

Boston, November 30, 1930.

To the Commissioner of Conservation:

The report of the work of this Division for the year ending November 30, 1930, is herewith submitted.

BOVINE TUBERCULOSIS

Eradication of bovine tuberculosis in cattle is the most important activity of this Division. Interest in the tuberculin test has exceeded any previous year, applications on 34,616 cattle having been filed in 1930.

Many of the cattle owners who are applying for the tuberculin test are doing so because they have been served an ultimatum that on or before a certain date the milk sold from their dairies must be from tuberculin-tested cows or "no sale of milk." This Division, is, therefore, faced with the problem of putting on these tests when required or of having these dairymen driven out of business. During the last two years the cattle under supervision have increased from 39,766 to 86,942. The testing of this large number has resulted in the slaughtering of 22,508 reactors during the two-year period and at the same time the cattle population in the State has increased by almost 18,000. The only conclusion to be drawn from the additional number of cattle under supervision and the increase in the cattle population is the fact that the tuberculin test is helpful to the dairy interests and must, therefore, result in larger production of milk.

The total number of tests in 1929 was 92,733, and in 1930, 121,821. The cattle under supervision have increased by 28,897, making a total at the end of this year of 86,942 under test. In the budget for 1930, \$400,000 was granted, but due to the unexpected growth of the work that sum was found inadequate and \$200,000 additional was appropriated in the Supplementary Budget.

Owing to the great interest shown in tuberculin test work it was thought that a volunteer advisory council drawn from representative organizations might be of value in connection with the many problems involved. The following Massachusetts organizations were therefore invited to send a delegate: State Grange, Farm Bureau Federation, Tested-Herd Owners Association, Extension Service, Dairymen's Association and the Guernsey, Holstein and Jersey Breeders' Associations. These delegates, with the Editor of the New England Homestead and the United States representative for this work in Massachusetts comprise the Advisory Council. This Council has been called together for five meetings and has been of great service.

On July 2, 1930, Dr. George E. Corwin, formerly Deputy Commissioner of Domestic Animals in the state of Connecticut, was appointed Assistant Director.

Section 33B of Chapter 129 of the General Laws as amended was further amended during the year, a portion of which reads as follows:

"Section 33B. The director may, upon application to him by not less than seventy-five per cent of the cattle owners owning cattle permanently kept in any city or town in a county other than Barnstable, or upon like application by the owners of eighty-five per cent of such cattle, declare said city or town a quarantine area and may proceed to test by the tuberculin test or otherwise all bovine animals within said area."

In accordance with this section, petitions have been received from the following towns: Rockport, Gloucester, Douglas, Westhampton, Middlefield, Goshen.

For convenience the record of the work on tuberculosis eradication is divided into three classes:

(1) THE EXAMINATION OF CATTLE REPORTED AS SHOWING PHYSICAL SYMPTOMS OF DISEASE.

The work of the department in connection with this classification is authorized under Chapter 129, Section 29 (requiring report of the existence of contagious disease in domestic animals), Section 11, (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

During the year there has been reported 263 head of cattle included in this classification. Of this number 185 were examined physically, condemned and killed, 178 proving to be affected with tuberculosis and seven showing no lesions of that disease. On two animals a so-called "permit to kill" was granted as there was a doubt on physical examination as to whether the condition of the animal was due to tuberculosis or not. Both of these animals proved to be affected with some condition other than tuberculosis. Seventeen animals reported, died prior to being examined. Fifty-five animals were released as physical examination did not indicate tuberculosis. In the case of four animals no disposition was made, and these four cases have been carried forward for action next year.

(2) THE TUBERCULIN TESTING OF CATTLE.

Section 32, Chapter 129, General Laws, relative to the use of tuberculin and Chapter 353, Acts of 1922 the so-called "Request Test Law" were amended by Chapter 335, Acts of 1927, Chapter 332, Acts of 1928 and Chapter 341, Acts of 1930.

The following tables are a record of the work accomplished in the testing of cattle at request of owner:

1930
TUBERCULIN TESTS BY MONTHS

	FIRST TEST				SECOND TESTS				THIRD OR MORE TESTS				ACCREDITED HERDS				TOTAL			
	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	
December	.	152	1,862	470	238	2,742	65	258	4,642	118	122	2,333	4	770	11,579	657	1,123			
January	.	204	2,434	851	179	1,473	83	232	4,717	153	192	3,441	36	807	12,065	1,079	1,777			
February	.	397	3,356	1,417	135	1,531	158	192	3,346	169	140	2,561	33	754	14,140	1,731	1,731			
March	.	335	3,872	1,401	161	1,578	97	238	5,288	209	133	3,002	24	867	11,009	680	11,009			
April	.	145	1,549	467	143	1,473	80	218	5,627	125	124	2,960	8	630	10,225	228	10,225			
May	.	6	9	0	287	2,445	106	262	5,826	104	149	1,935	18	704	1,120	1,249	1,120			
June	.	49	249	106	209	2,327	90	178	3,085	78	72	909	1	508	6,570	275	6,570			
July	.	551	4,972	2,098	95	637	24	128	2,541	45	40	398	5	817	8,548	2,172	8,548			
August	.	301	2,816	1,098	88	706	20	145	3,032	68	39	794	5	573	7,348	1,191	7,348			
September	.	295	2,464	968	129	612	29	200	3,613	112	62	1,091	7	686	7,780	1,116	7,780			
October	.	314	2,842	1,060	200	1,909	104	190	3,933	100	81	1,441	14	785	10,125	1,278	10,125			
November	.	236	2,295	1,034	124	972	60	556	4,565	131	204	3,207	24	1,120	11,039	1,249	11,039			
Total	.	2,888	10,970	1,988	916	2,797	50,225	1,412	1,358	24,072	179	9,031	13,477	121,822	11 %					
			28,720	38.2%	18,805	4.8%														
Pure Breeds																				
Grades																				

Pure Breeds 26,423 Tested 1,039 Reacted 3.9%
Grades 95,399 Tested 12,438 Reacted 13.7%

1930

TUBERCULIN TESTS BY COUNTIES

	FIRST TEST			SECOND TEST			THIRD OR MORE			ACCREDITED			TOTAL					
	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted			
Barnstable	.	.	63	78	2	1,021	125	3	469	2,227	41	140	817	7	716	3,247	53	
Berkshire	.	.	371	4,496	44	3,410	1,49	334	9,332	225	4,332	47	1,385	21,320	1,442			
Bristol	.	.	276	2,311	1,151	92	913	69	1,882	72	322	807	1	450	5,913	1,293		
Dukes	.	6	25	25	1	6	41	7	76	52	202	25	2	44	712	9,754	5	
Essex	.	.	237	2,639	1,319	176	1,573	86	243	4,270	85	36	1,272	8	1,473	19,290	1,163	
Franklin	.	.	525	4,880	954	501	5,531	101	369	6,789	107	78	2,080	1	1,427	5,152	428	
Hampden	.	.	110	1,057	390	89	565	8	115	1,593	14	113	1,937	16	769	10,027	844	
Hampshire	.	.	286	2,781	684	145	1,183	45	138	2,641	105	200	3,422	10	901	12,344	2,381	
Middlesex	.	319	3,129	1,908	1,697	165	315	6109	286	699	1,489	22	10	208	14	431	6,827	454
Nantucket	.	70	609	325	3	21	413	15	171	4,539	100	98	1,246	7	519	5,967	495	
Norfolk	.	164	916	242	73	506	43	158	2,777	186	124	1,768	24	13	113	8		
Plymouth	.	461	5,799	2,973	245	2,917	232	309	9	56	1	166	4,285	20	1,181	20,735	3,413	
Suffolk																		
Worcester																		
Total	.	.	2,888	28,720	10,970	1,988	18,805	916	2,797	50,225	1,412	1,358	24,072	179	1,031	121,822	13,477	

COUNTY STATISTICS

	CATTLE			ONE CLEAN			TWO CLEAN				
	CENSUS		UNDER TEST			TEST		TESTS		ACCREDITED	
	Herds	Head	Herds	Head	%	Herds	Head	Herds	Head	Herds	Head
Barnstable .	637	2,218	658	2,382	100	63	90	390	971	184	857
Berkshire .	2,037	22,731	1,156	15,720	63	392	4,758	318	3,140	376	6,138
Bristol .	2,379	20,031	335	4,199	20	150	1,064	15	256	36	1,293
Dukes .	145	820	58	469	57	13	62	5	11	35	329
Essex .	1,564	14,057	468	5,757	40	169	1,451	119	1,009	97	1,954
Franklin .	2,005	19,443	1,162	14,006	72	464	3,906	307	4,230	332	4,779
Hampden .	1,827	13,035	386	4,460	34	98	733	95	997	158	2,188
Hampshire .	1,894	17,641	696	8,277	41	271	2,030	104	797	235	3,908
Middlesex .	2,630	22,876	649	7,796	34	228	1,969	140	1,713	138	1,885
Nantucket .	40	557	10	229	40			1	18	9	211
Norfolk .	1,267	9,429	333	4,514	48	52	1,035	119	1,264	126	1,504
Plymouth .	1,849	10,460	454	4,426	42	152	836	86	408	154	1,976
Suffolk .	39	286	10	84	29	3	30	3	9	4	45
Worcester .	5,041	48,808	891	14,627	30	288	2,618	127	1,966	229	5,448
Total .	23,354	202,392	7,266	86,946	43	2,343	20,582	1,829	16,789	2,113	32,515

The above figures indicate:

An increase of 2,418 herds under test.....	1929	1930
An increase of 28,901 cattle under test.....	4,848	7,266
An increase of 1,866 herds no reactors last test.....	58,045	86,946
An increase of 19,425 cattle no reactors last test.....	4,319	6,185
An increase of 662 herds accredited.....	50,461	69,886
An increase of 8,556 cattle accredited.....	1,451	2,113
	23,959	32,515

The average salvage received by owners of reacting cattle for this year was \$32.53 as compared with \$43.08 in 1929.

The Brighton Market handled this last year 12,719 dairy cows. Of this number 70% were eligible as additions to supervised herds and, therefore, entitled to white slips and the remaining 30%, not being eligible, were entitled to pink slips only. White slip cows and pink slip cows are kept separate upon entering the Brighton barn for sale.

Inoculation for the prevention of Brighton or Shipping Fever, so-called, is, upon the arrival of the cattle at the Market, given practically at cost to cattle whose owners desire the same. There were this year 5,149 cattle immunized. This service is much appreciated by the Brighton dealers, and, we believe, prevents many fatalities from that disease.

During the year there were 2,686 trucks which delivered 4,121 reactor cattle at the Quarantine Station, and these trucks in accordance with a ruling of this division were cleansed and disinfected before leaving the yard. The Brighton Stock Yards Company also requires that all trucks before taking dairy cattle from the Brighton Market must be cleansed and disinfected.

These improvements in the method of handling cattle at the Brighton Market have been helpful in raising the standard of that Market as a suitable place to buy dairy cows.

During the year there were received at the Quarantine Station 2,368 head of Massachusetts cattle intended for dairy purposes. Two thousand three hundred and fifty-four (2,354) were accepted on records of test made prior to shipment; 14 were held, submitted to test and then released.

(3) SUPERVISION OF THE INTERSTATE MOVEMENT OF CATTLE INTO MASSACHUSETTS.

Following is a record of cattle received at the Quarantine Station at Brighton:

Released on approved certificate of health Held, Tested and Released

5,652	Maine	2
2,185	New Hampshire	16
1,602	Vermont	20
732	New York	2
91	Ohio	0
18	Connecticut	0
3	Rhode Island	0
27	Canada	1
10,310		41

Total receipts 10,351

Compared with 11,667 received in 1929 on papers, 37 held and tested, 2% of which reacted.

There were 12,349 dairy cattle received at other points on permit from the following states: Canada, 283; Connecticut, 504; Illinois 1; Iowa, 79; Maine, 1,261; Maryland, 33; Michigan, 56; Minnesota, 103; Missouri, 56; New Hampshire, 1,334; New Jersey, 15; New York, 1,380; Ohio, 1,111; Pennsylvania, 21; Rhode Island, 189; Vermont, 4,827; Virginia, 38; Wisconsin, 958; Wyoming, 1. Seventy-eight (78) of this 12,349 were tested after arrival, 18 reacting. In addition to the dairy cattle there were received on permits 2,871 beef cattle, and 900 cattle for exhibition purposes. This compares with 14,829 dairy cattle, 5,188 beef cattle and 1,384 cattle for exhibition purposes in 1929.

RECEIPTS OF LIVESTOCK AT THE QUARANTINE STATIONS AT BRIGHTON AND SOMERVILLE

There were received at these stations during the year the following: 73,553 cattle; 132,272 calves; 316,451 sheep and lambs; 620,138 swine.

CONTAGIOUS DISEASES OF SWINE

Service without cost other than for material used has been continued as in previous years for owners of swine. Weather conditions which have been exceptionally dry during the entire year have been favorable for the raising of swine and tended to lessen the amount of sickness especially of the type usually allied with hog cholera, namely, hemorrhagic septicemia.

A general policy has been adopted this past year of applying the simultaneous treatment (serum and virus) to young pigs (weighing 30 pounds and under). This method together with the application of hemorrhagic septicemia aggressin at time of cholera treatment has, it is believed, resulted in a smaller loss following treatment and also in considerable saving to the swine owners for material used and a saving to the department of labor in lessening the number of treatments required.

This work is done upon application of the owner who is required to sign a request and to agree to comply with certain regulations relative to quarantine, sanitation, etc.

During the year there were applied 88,740 treatments for prevention of hog cholera and 23,166 treatments for control of hemorrhagic septicemia.

RABIES

During the year, 739 animals affected with rabies have been recorded, the disease occurring in all sections of the State. While this condition is usually referred to in connection with the dog, it is a disease of all warm-blooded animals and has during the past year been diagnosed not only in dogs but also in cats, horses, cattle and swine. As in other years, the method of control has been through the destruction of animals showing definite symptoms of disease and holding under restraint (quarantine) suspected animals and animals known to have been in contact with a diseased animal. Suspected animals are held until a definite diagnosis is made. Contact animals are held 90 days from date of contact, a period

which is shortened in animals that are given anti-rabic treatment to 21 days from date of completion of treatment. As shown in the tabulation, 71 contact animals developed the disease and died or were destroyed, 44 were killed by owners, no symptoms of rabies, 861 including 166 cases not disposed of at end of the year 1929 were released and 630 contact animals were still under restraint at the end of the year.

Under Section 6, Chapter 111 of the General Laws, the State Department of Public Health has ruled that bites inflicted by dogs are to be included in the list of diseases declared to be dangerous to the public health and so in accordance with that ruling such dogs must be reported to this Division. Under this requirement there have been reported 4,739 persons bitten. These reports are referred by this Division to the local Inspector of Animals of the towns where injury was inflicted, for investigation and quarantine. Under Department Order No. 34, Section 3, such dogs if located "shall be quarantined for a period of 14 days for observation, at the end of which period if no symptoms of rabies have developed said animals may be released," etc. Four thousand one hundred and ninety-six dogs, cats, etc. were restrained under this order. Of the persons bitten 190 were bitten by dogs that were affected with rabies.

When an animal that has bitten a person, dies, or is killed, it is required that the head of the animal be forwarded to the Department Laboratory for a definite diagnosis. During the year, there have been received the heads of 474 animals, 315 of which were found positive for rabies, 32 on which no definite diagnosis could be made and 127 negative or not affected with rabies.

Attention is called to the number of positive cases of rabies occurring in cattle and swine during the year. This condition is accounted for due to the fact that this class of animals are usually confined in groups and therefore are more exposed to attack by the usual carrier of the disease, namely, the rabid dog.

The following table is a tabulation of cases recorded for the year:

RABIES

SHOWING SYMPTOMS

CONTACT

BITE CASES

	Positive	Negative	Questionable	Released	Killed or died—no symptoms of rabies	Killed positive	Disposal pending	Released	Killed—no examination	Killed negative	Disposal pending	Total
Forward, year 1929 .				166				134				300
December, 1929 . . .	65	6		101	32			194	2	4		404
January 1930 . . .	42	6		192	3	4		230	7	1		485
February . . .	177	3		111	4	10		192	2	8		507
March . . .	51	6		57	2	6		271	4	6		403
April . . .	58		1	12		5		366	9	9		460
May . . .	69	6	2	42	1	2		466	9	12		609
June . . .	41	1	5	49	1	6		576	12	10		701
July . . .	41	6	2	105		6		521	6	8		695
August . . .	35	5	5	22		4		426	5	9		511
September . . .	25	5	1	2				361	6	7		407
October . . .	28	6	13	2		22		239	3	1		314
November . . .	36	3	4		1	6		111	1	1		163
Forward . . .							630				101	731
	668	53	33	861	44	71	630	4087	66	76	101	6690
	TOTAL POSITIVE CASES, 739											

The above record refers to the following animals:

Bear									1			1
Cats	6	1	2		7	3	1	5	25	1	3	54
Cattle	2	4		30	67		10					83
Dogs	580	48	30		635	41	32	65	4,060	65	73	5,730
Horses	1				1		2					4
Monkeys										1		1
Poultry						12						12
Rat			1									1
Swine	79				139		26	560				804

BANG ABORTION DISEASE

Bang Abortion Disease is an infectious disease of cattle and other animals and at the present time is a question of great moment to the live-stock industry. Conditions indicate that nowhere in the United States is it more prevalent than in our Eastern and New England States. From records available it is estimated that at least 85% of our herds are infected and that at least 20% of the animals contained therein are affected or give positive results to laboratory test. Massachusetts yearly imports many dairy cattle, some of which have not been subjected to the blood test and which cattle may be infected, which would undoubtedly tend to the spread of the disease. In order that Massachusetts may not become a dumping ground for known diseased or positive animals found in other states, the Division of Animal Industry has drawn up rules and regulations prohibiting, except under certain conditions, the importation of animals known to have reacted to the abortion test. These regulations printed below became effective July 16, 1930.

STATE HOUSE, BOSTON.

June 24, 1930.

ORDER No. 42

To Transportation Companies, Inspectors of Animals, and all persons whom it may concern:

Section 1. A bovine animal which has recently aborted or which has given a positive or suspicious reaction to the agglutination or complement fixation test for Bang Abortion Disease (Contagious or Infectious Abortion) shall not be shipped, driven, transported or moved into the Commonwealth of Massachusetts except upon and accompanied by a special permit issued by the Director of Animal Industry.

Section 2. Any animal brought in on a permit as referred to in Section 1 of this order is hereby declared to be in quarantine and must be held in isolation at the risk and expense of the person, firm or corporation owning the same until released by order of the Director.

Section 3. An animal as referred to in Section 2 of this order after passing two approved negative blood tests for Bang Abortion Disease made after arrival and at least three months apart may be released by the Director.

This order shall be published by the Inspector of Animals in each city and town in the Commonwealth by filing a copy hereof with the City Clerk or Town Clerk as the case may be and by posting a copy hereof in a conspicuous public place within the city or town for which he is the Inspector of Animals.

EVAN F. RICHARDSON,
Director of Animal Industry.

Approved:

W. A. L. BAZELEY,
Commissioner of Conservation

Approved in Council: July 16, 1930.

WILLIAM L. REED,
Executive Secretary

Many herd owners, in order to have their herds free from Bang Abortion Disease and to meet sale and milk requirements, have taken steps to free their herds from this disease. The course which is pursued is the only known method by which herds may be freed and maintained as such, namely, blood testing—isolation—and proper sanitation. The blood test consists of the laboratory examination of the blood, known as the Agglutination test, for the detection of the positive or diseased animals. This test is proving satisfactory and reasonably accurate when applied under proper conditions and with care and intelligence. Hygienic and sanitary conditions must be constantly maintained. In order that herd owners may receive some assistance in building up and maintaining a herd free from Bang Abortion Disease and when freed and having passed a specified number of tests to be certified to as Bang Abortion Disease-free, the Commonwealth of Massachusetts, through the Division of Animal Industry, has, with the approval of the Governor and his Council, made the following rules and regulations:

RULES AND REGULATIONS

Applying to the establishment of Bang Abortion Disease (Bovine Infectious Abortion) Free Accredited Herds on voluntary request of the owner Under the Provisions of Section 2, Chapter 129 of the General Laws, as Amended by Chapter 203, Acts of 1930.

1. A Bang Abortion Disease-Free Accredited Herd is one in which no evidence of Bang Abortion Disease has been indicated by three consecutive blood tests of all bovine animals in the herd six months of age or over made six or more months apart and which herd is maintained under State supervision for the eradication of tuberculosis.

2. The owner must furnish information as to all bovine animals in the herd giving herd, tattoo or ear tag number, registration name and number date of birth, etc. A new or revised list must be furnished at time of each succeeding entire herd test.

3. The necessary work for the accreditation of a herd as free from Bang Abortion Disease shall be conducted co-operatively by the State and owner; the drawing of blood from the animal by an accredited veterinarian or an authorized representative of the Massachusetts Department of Conservation, Division of Animal Industry, the tagging and proper identification of each animal and the necessary sanitary procedure shall be arranged for by and at the expense of the owner.

4. The examination of blood will be made without charge by the State, through the Division of Animal Industry, or may at the expense of the owner be made by any laboratory which is approved by the Director, and which laboratory furnishes the Director a copy of its reports.

5. A. If one or more animals in the herd aborts or is positive to the blood test, it or they shall immediately be removed from the herd, information as to the identification and disposition of said animal or animals sent to the Division of Animal Industry, and the premises shall be promptly cleansed and disinfected. Such animal or animals shall not be returned to the herd unless and until it or they have passed two negative blood tests made at least six months apart, said test not to be made within two weeks prior to or three weeks following calving.

B. If one or more animals in the herd aborts or is positive to the blood test, all animals in the herd six months of age or over shall be retested in from sixty to ninety days.

6. Upon approval of the Director, a "Bang Abortion Disease-Free Accredited Herd" certificate shall be issued to herds the owners of which have complied with the preceding rules and regulations and which herds have passed the three consecutive negative blood tests required by Regulation No. 1, and providing that the drawing of blood next prior to issuing the certificate shall be under the direct supervision of a representative of the Massachusetts Department of Conservation Division of Animal Industry.

7. A. A Bang Abortion Disease-Free Accredited Herd shall be retested annually.

B. If one animal in a Bang Abortion Disease-Free Accredited Herd at any time aborts or reacts to a blood test, the certificate of accreditation shall be suspended until all animals in the herd six months of age or over have passed one negative blood test made in not less than thirty days.

C. If more than one animal in a Bang Abortion Disease-Free Accredited Herd at any time aborts or reacts to a blood test, the certificate shall be suspended until all animals in the herd six months of age or over have passed two negative blood tests made at least three months apart.

8. Herd bulls may at the discretion of the owner be used for service on cattle which have not been tested and found free of Bang Disease. Service, however, must be on neutral ground.

9. Additions to a Bang Abortion Disease-Free Accredited Herd must comply with the following:

- A. Cattle from a Bang Abortion Disease-Free Accredited Herd may be added without restest.
- B. Pregnant animals unless from accredited herds must be isolated until after calving and must then pass a negative blood test made not earlier than three weeks after calving.
- C. Cattle with the exception of calves under six months of age from herds that are not accredited must pass two successive negative blood tests made not earlier than sixty nor later than one hundred and twenty days apart.
- D. Calves under six months of age may be added on one negative blood test.
- E. Cattle removed from an accredited herd for exhibition purposes must on their return pass a negative blood test made not earlier than three weeks after return.

10. Upon violation of any of the foregoing rule and regulations the certificate of accreditation may be suspended by the Director.

EVAN F. RICHARDSON,
Director of Animal Industry.

Approved:

W. A. L. BAZELEY,
Commissioner of Conservation

Approved in Council: July 16, 1930

WILLIAM L. REED,
Executive Secretary

There are at the present time, from owners interested in having their herds "BANG ABORTION DISEASE-FREE", seventeen applications on file consisting of 428 animals.

During the fiscal year there were submitted to this Division 7,782 blood samples for agglutination tests, compared with 3,800 received during the year 1929 and 834 for the year 1928. Blood samples submitted to this Division are examined or tested without expense to the owner. Containers or vials for obtaining these blood samples are furnished on request and without cost.

MISCELLANEOUS DISEASES

Actinomycosis:—Only one case of this disease was reported. The affected animal, a cow, was slaughtered.

Blackleg:—The use of aggressin in the preventive treatment against Blackleg in cattle was continued as in previous years. Seven hundred and seventy-two animals were treated on 81 farms in 38 towns. This service is rendered without cost to owners of cattle.

Glanders:—Five horses affected with Glanders were condemned and killed. Three of these cases were in one stable in the city of Boston, and were found as the result of a blood test of all horses in the stable, conducted on account of the finding of a clinical case of the disease in a horse kept at said stable. Two stable tests were conducted during the year, one in a stable of 29 horses, the other in a stable of 40 horses. A total of 82 horses were examined during the year. Eighty samples of blood were examined and 49 ophthalmic tests applied.

Mange:—This disease has been reported on only 8 premises, 21 animals being affected. It is believed that this condition has existed on many premises where it was considered as "barn itch" and accordingly not reported. Advice regarding treatment has been given where cases are reported and the animals released when recovery has taken place.

Tuberculosis in Swine:—Fourteen head of swine affected with tuberculosis were reported. This condition is rarely called to the attention of the Department except at time of slaughter. When found, the case is traced back to point from which the animal originated and careful physical examination is made of all livestock on the premises. Advice is given relative to disinfection, etc.

Tuberculosis in Poultry:—From a general survey it is believed that this condition does not exist to any extent in this Commonwealth. The disease has, however, been found during the year on two widely separated premises. These cases were handled by the owners, disposing of all adult heads by slaughter and careful cleansing and disinfection of houses and yards.

Plant Poisoning:—Owing to the long dry period during the past summer and early fall with the consequent poor pasture conditions, several cases of plant or forage poisoning occurred due to the eating of shrubs, etc., of different varieties. Several deaths in cattle were reported from this condition in widely separated sections of the State. Symptoms and post-mortem findings strongly resembled hemorrhagic septicemia, which, however, was not borne out by laboratory examination, and the condition was ultimately found to be due to plant or forage poisoning.

DISINFECTION

In connection with the prevention and eradication of contagious diseases, and as important as is the removal or destruction of the infected animal itself, is the necessity of proper cleansing and disinfection of the premises where the disease has occurred. Too great care can not be taken to make certain that all litter is removed and buried, that ceilings, walls, floors, etc., are completely scraped and all cracks and crevices cleaned or removed through repairs after which the surface should be thoroughly washed and then sprayed with a proper disinfectant.

Payment for animals on which compensation is authorized by the Commonwealth is not approved until the premises occupied by said animal or animals has been inspected and approved. This inspection is made by the local Inspector of Animals who, in addition to reporting as to whether the work has or has not been properly done is also required to report the name of the disinfectant used and the amount. Only such disinfectant as contains 50% or over of cresylic acid is approved in this work.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of premises where kept was issued December 10, 1929, calling for completion of the inspection on or before March 1, 1930.

From the reports received from the Inspectors of Animals of all cities and towns in the Commonwealth, there were inspected on 23,354 premises: 202,392 head of cattle, 11,189 sheep, 87,311 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Barnstable, Greenfield, Pittsfield, Springfield and Worcester. As usual these meetings were well attended and from the interest shown it is believed are of value to these officials.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 115, Acts of 1930	\$3,875.00
Expended during the year for the salary of the Director	\$3,875.00
Appropriation for personal services of clerks and stenographers, chapter 115, Acts of 1930	\$17,300.00
Expended during the year for personal services of clerks and stenographers	\$17,149.17
Unexpended balance	150.83

	\$17,300.00
Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, and office supplies and equipment, chapter 115, Acts of 1930	\$8,400.00
Brought forward from 1930 appropriation	9.25

Total amount appropriated	\$8,409.25

Expended during the year for the following purposes:	
Books and Maps.....	\$58.85
Express and messenger service.....	522.26
Postage.....	1,670.42
Printing report.....	54.98
Other printing.....	987.87
Telephone and telegrams.....	891.31
Stationery and office supplies.....	2,563.83
Expenses of the Director.....	1,375.08
 Total Expenditure.....	 <u>\$8,124.60</u>
Unexpended balance.....	284.65
	<u>\$8,409.25</u>
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 115, Acts of 1930.....	\$60,000.00
Supplementary Budget, chapter 426, Acts of 1930	5,000.00
Transferred from Appropriation for Extraordinary Expenses.....	1,150.00
Brought forward from 1929 Appropriation.....	40.00
 Total amount appropriated.....	 <u>\$66,190.00</u>
Expended during the year for the following purposes:	
Services of salaried agents.....	\$39,068.35
Services of per diem agents.....	26,985.80
Labor hired.....	104.00
 Total expenditure.....	 <u>\$66,158.15</u>
Unexpended balance.....	31.85
	<u>\$66,190.00</u>
Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, chapter 115, Acts of 1930.....	\$28,000.00
Supplementary Budget Chapter 426, Acts of 1930	2,500.00
Brought forward from 1929 Appropriation.....	59.89
 Total amount appropriated.....	 <u>\$30,559.89</u>
Expended during the year for the following purposes:	
Traveling expenses of regular agents.....	\$16,546.28
Traveling expenses of per diem agents.....	12,594.79
 Total expenditure.....	 <u>\$29,141.07</u>
Unexpended balance.....	1,418.82
	<u>\$30,559.89</u>
Appropriation for reimbursement of owners of horses killed during the present and previous years; travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, chapter 115, Acts of 1930.....	\$6,300.00
Brought forward from 1929 Appropriation.....	35.50
 Total amount appropriated.....	 <u>\$6,335.50</u>

The average amount paid for cattle slaughtered under the provisions of Chapter 353, Acts of 1922, Chapter 335, Acts of 1927 and Chapter 332, Acts of 1928, was \$72.29 for registered purebred cattle and \$46.34 for grade cattle.

Forty-eight claims for reimbursement for cattle condemned and killed as physical cases of tuberculosis during the year remain unsettled, these claims amounting to \$1,170.

Six hundred one (601) unpaid claims covering 3,551 cattle, to which provisions of Chapter 353, Acts of 1922 and Chapter 335, Acts of 1927, and Chapter 332, Acts of 1928, apply, remain unpaid, amounting to \$164,386.29.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$22; for sales of hides and carcasses \$49.88; Hemorrhagic Septicemia treatments at Brighton \$772.35; and one Court Fee of \$1.75.

Respectfully submitted,

EVAN F. RICHARDSON,

Director.

The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

Year ending November 30, 1931

Government Documents
Collection
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University of Massachusetts



(Offices: 20 Somerset Street, Boston.)

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The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY
Boston, November 30, 1931.

To the Commissioner of Conservation:—

The report of the work of this Division for the year ending November 30, 1931, is herewith submitted.

BOVINE TUBERCULOSIS

Eradication of bovine tuberculosis is the most important activity of this Division. On December 1, 1930, we had on file at this office applications for the tuberculin test for over 10,000 head of cattle, and during the first four months of this year have received applications covering 28,642 cattle, with a total for the year of 51,189. We have been faced, therefore, with a difficult and impossible program, as the appropriations made by the Federal and State governments would not be sufficient to pay the indemnity which would be incurred in testing so large a number of cattle. This matter was then presented to the Commissioner of this Department, the Federal authorities, and the Advisory Council, and in accordance with their recommendation it was decided to apply initial tests in those towns only from which we had received petitions for area test and quarantine. As the result of that procedure petitions for the area test and quarantine came in rapidly, totaling for the year 160 towns, as follows:

<i>Berkshire County</i>			
Adams	Florida	Lee	Stockbridge
Alford	Great Barrington	Lenox	Tyringham
Clarksburg	Hancock	Monterey	Williamstown
Dalton	Hinsdale	New Ashford	Windsor
Egremont	Lanesborough	Richmond	
<i>Bristol County</i>			
Fairhaven		Fall River	Rehoboth
<i>Essex County</i>			
Andover	Essex	Manchester	North Andover
Beverly	Haverhill	Merrimac	Topsfield
Danvers	Ipswich	Middleton	
<i>Franklin County</i>			
Ashfield	Deerfield	Leverett	Shelburne
Bernardston	Erving	Monroe	Sunderland
Buckland	Gill	Montague	Wendell
Charlemont	Greenfield	Northfield	Whately
Colrain	Hawley	Orange	
Conway	Leyden	Rowe	
<i>Hampden County</i>			
Agawam	Goshen	Middlefield	Wales
Blandford	Granville	Montgomery	Westhampton
Brimfield	Hampden	Russell	Wilbraham
Chester	Holland	Southwick	
East Longmeadow	Longmeadow	Tolland	
<i>Hampshire County</i>			
Amherst	Cummington	Huntington	Ware
Chesterfield	Hatfield	Plainfield	Worthington
<i>Middlesex County</i>			
Ashby	Carlisle	Marlborough	Sudbury
Ashland	Concord	Maynard	Tyngsboro
Ayer	Framingham	Natick	Wayland
Boxborough	Lexington	Shirley	
<i>Norfolk County</i>			
Bellingham	Medway	Plainville	Weymouth
Franklin	Millis	Walpole	Wrentham
Medfield	Norfolk	Westwood	

Hull	Plymouth County	Plymouth
Ashburnham	Gardner	Northborough
Athol	Grafton	Northbridge
Auburn	Hardwick	North Brookfield
Barre	Hopedale	Oakham
Berlin	Hubbardston	Oxford
Blackstone	Lancaster	Paxton
Bolton	Leicester	Petersham
Boylston	Leominster	Philipston
Brookfield	Lunenburg	Princeton
Charlton	Mendon	Royalston
Dana	Milford	Rutland
Dudley	Millville	Southborough
East Brookfield	New Braintree	Spencer
Worcester County		
		Sterling
		Sturbridge
		Sutton
		Upton
		Uxbridge
		Warren
		Webster
		Westborough
		West Brookfield
		Westminster
		Winchendon
		West Boylston

We have completed the area test in 53 of these towns, and in addition the towns of Rockport, Gloucester, Douglas, and Heath were declared modified accredited areas and protected by rules of quarantine approved by the Governor and Council on February 11, 1931 (Rockport and Gloucester), May 25, 1931 (Douglas), and June 3, 1931 (Heath).

There were made during the year 165,633 tuberculin tests, or an increase of 43,812 over the preceding year.

The voluntary Advisory Council, which was organized in 1930, was called together three times during this year, and this group of delegates, representing the following organizations, have been most helpful in their suggestions:

- Massachusetts State Grange
- Massachusetts Jersey Breeders Association
- Massachusetts Farm Bureau Federation
- Massachusetts Tested-Herd Owners Association
- New England Homestead
- Massachusetts Extension Service
- Guernsey Breeders Association
- Holstein Breeders Association
- Massachusetts Dairymen's Association
- Massachusetts Milk Producers' Association
- United States Bureau of Animal Industry

For convenience the record of the work on tuberculosis eradication is divided into three classes:

(1) THE EXAMINATION OF CATTLE REPORTED AS SHOWING PHYSICAL SYMPTOMS OF DISEASE

The work of the department in connection with this classification is authorized under Chapter 129, Section 29 (requiring report of the existence of contagious disease in domestic animals), Section 11 (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

During the year there has been reported 346 head of cattle included in this classification. Of this number 249 were examined physically, condemned and killed, 243 proving to be affected with tuberculosis and 6 showing no lesions of that disease. On four animals a so-called "permit to kill" was granted, as there was a doubt on physical examination as to whether the condition of the animal was due to tuberculosis or not. One of these animals proved to be affected with some condition other than tuberculosis. Twenty-five animals reported died prior to being examined. Fifty-one animals were released as physical examination did not indicate tuberculosis. In the case of seventeen animals no disposition was made, and these seventeen cases have been carried forward for action next year.

(2) THE TUBERCULIN TESTING OF CATTLE

The following tables are a record of the work accomplished in the testing of cattle at request of owner:

1931

TUBERCULIN TESTS BY MONTHS

1931

TUBERCULIN TESTS BY COUNTIES

COUNTIES	FIRST TEST			SECOND TEST			THIRD OR MORE			ACCREDITED			TOTAL			
	HERDS	HEAD	REACTION	HERDS	HEAD	REACTION	HERDS	HEAD	REACTION	HERDS	HEAD	REACTION	HERDS	HEAD	REACTION	
Barnstable	39	54	1	47	68	0	332	1,583	39	250	1,237	14	668	2,942	54	
Berkshire	271	2,428	381	306	3,207	135	734	13,807	278	363	6,481	108	1,674	25,923	902	
Bristol	139	1,408	800	224	1,700	126	337	5,620	184	32	1,040	8	732	9,768	1,118	
Dukes	3	9	4	5	42	5	14	161	1	294	2	56	506	12	12	
Essex	132	1,478	850	182	1,503	89	416	6,049	121	98	2,106	30	828	11,136	1,090	
Franklin	367	2,729	526	443	3,233	78	702	11,545	200	319	4,873	10	1,831	22,380	814	
Hampden	255	2,177	685	119	1,227	115	234	3,261	74	156	2,188	16	794	8,833	890	
Hampshire	268	2,608	803	339	2,862	239	451	7,428	354	222	3,922	54	1,280	16,820	1,467	
Middlesex	186	2,233	1,456	296	2,151	246	528	8,899	306	132	2,020	12	1,112	15,303	2,020	
Nantucket	—	—	—	—	—	—	3	123	0	106	0	0	7	229	0	
Norfolk	233	1,414	529	62	706	100	239	4,756	85	118	1,456	16	652	8,332	730	
Plymouth	59	559	210	155	814	47	224	3,548	215	137	1,881	32	375	6,832	504	
Suffolk	—	—	10,516	5,028	666	6,608	514	784	14,282	419	218	46	0	11	104	0
Worcester	1,025	—	—	—	—	—	—	—	—	—	—	40	2,693	36,495	6,001	
Total	2,977	27,653	11,273	2,849	24,121	1,714	5,006	81,120	2,273	2,081	32,739	342	12,913	165,633	15,662	

COUNTY STATISTICS

COUNTIES	CATTLE CENSUS			UNDER TEST			LAST TEST CLEAN		ACCREDITED	
	Herds	Head	Herds	Head	%	Herds	Head	Herds	Head	
Barnstable . . .	628	2,361	628	2,361	100	-	-	608	1,885	
Berkshire . . .	2,046	24,044	1,365	18,588	77	656	7,247	660	9,970	
Bristol . . .	2,421	20,311	422	5,083	25	325	3,053	72	1,305	
Dukes . . .	134	805	56	450	54	17	115	37	328	
Essex . . .	1,535	14,190	555	8,583	60	316	3,094	220	3,162	
Franklin . . .	2,085	20,476	1,467	16,402	80	656	4,915	796	11,008	
Hampden . . .	1,803	13,679	604	6,655	48	336	2,658	248	3,161	
Hampshire . . .	1,966	18,257	937	10,409	57	529	4,613	348	4,896	
Middlesex . . .	2,580	23,318	778	9,631	41	411	4,388	269	3,683	
Nantucket . . .	37	498	7	229	46	-	-	7	229	
Norfolk . . .	1,277	9,427	532	5,449	57	299	2,217	168	2,192	
Plymouth . . .	1,790	10,440	467	4,852	46	208	1,637	227	2,476	
Suffolk . . .	31	265	9	80	30	1	1	8	79	
Worcester . . .	5,071	49,057	1,830	23,048	47	1,090	10,063	423	7,718	
Total . . .	23,404	207,128	9,657	111,820	54	4,844	44,001	4,091	52,095	

The above figures indicate:

	1930	1931
An increase of 2,391 herds under test	7,266	9,657
An increase of 24,874 cattle under test	86,946	111,820
An increase of 2,650 herds no reactors last test ...	6,285	8,935
An increase of 26,210 cattle no reactors last test ..	69,886	96,096
An increase of 1,978 herds accredited	2,113	4,091
An increase of 19,580 cattle accredited.....	32,515	52,095

The average salvage received by owners of reacting cattle for this year was \$19.23 as compared with \$32.53 in 1930.

The Brighton Market handled this year 10,306 dairy cows. Of this number, 50 were tested, 2 of which reacted and were killed. The interstate regulations went into effect June 1, 1931, and from that time on only such dairy cattle as are qualified to enter herds maintained under supervision were allowed in the Sales Barn.

Inoculations for the prevention of Hemorrhagic Septicemia or Shipping Fever, so-called, is given, upon the arrival of the cattle at the Market, practically at cost at request of the owners. There were 4,326 cattle immunized, and we believe that this service is much appreciated by all concerned, and no doubt prevents many fatalities from that disease.

Three thousand six hundred and seventy-four Massachusetts reactors were received at the Yards during the year; 2,663 arriving by truck and 1,011 arriving by train. These cattle were identified and released for immediate slaughter on special permits to slaughtering establishments under Federal inspection and to establishments on the premises of the Brighton Abattoir. All the trucks and cars in which these reactors were brought in were disinfected under supervision. The Sales Barn has been cleaned and disinfected at regular intervals under the supervision of the United States Bureau of Animal Industry, and all trucks, numbering 1,852, taking dairy cows from this Market were disinfected under our supervision.

(3) SUPERVISION OF INTERSTATE MOVEMENT OF CATTLE INTO MASSACHUSETTS

Following is Order No. 43, approved by the Governor and Council on April 1, 1931:

20 SOMERSET ST., BOSTON,
April 1, 1931.

To Transportation Companies, Inspectors of Animals, and all Persons Whom it May Concern:

Division Order No. 35 is hereby revoked and the following order submitted therefor:—

Section 1. All bovine animals driven, shipped or in any way transported to the Commonwealth of Massachusetts from any point outside thereof

must be accompanied by a permit signed by the Director of Animal Industry, except as provided in sections 3 and 4 of this order, and if intended for dairy or breeding purposes must also be accompanied by a certificate of tuberculin test* indicating said animal or animals to be direct from a herd of cattle maintained under State and Federal supervision for the eradication of bovine tuberculosis, in which herd no reactors were found at time of last entire herd test.

The Director of Animal Industry may in his discretion ignore any such certificate and cause the animal or animals recorded thereon to be retested and may then proceed as under section 6 of this order.

Section 2. Bovine animals intended for dairy or breeding purposes shall not be shipped or in any way transported to the Commonwealth of Massachusetts in a car, truck, or vehicle containing cattle intended for any other purpose.

Section 3. The premises of the Brighton Stock Yards Company in Brighton within the city of Boston and the premises of the New England Dressed Meat and Wool Company in the city of Somerville are hereby declared to be quarantine stations, and no animals are to be released therefrom except by permission of the Director of Animal Industry or an agent of the Division. Bovine animals may be shipped to these stations unaccompanied by a permit signed by the Director; provided, however, that said premises are not partially or entirely closed by order of the Director because of an outbreak of contagious disease among animals or for any other cause.

Section 4. Animals intended for immediate slaughter and consigned to a slaughtering establishment which is under federal inspection need not be accompanied by a permit. Such animals shall not be removed therefrom alive.

Section 5. All bovine animals driven, shipped or in any way transported to Massachusetts and arriving at any point other than the quarantine stations mentioned in section 3 and federal-inspected premises as provided in section 4 are hereby declared to be in quarantine and must be held at the risk and expense of the person, firm or corporation owning the same until released by order of the Director.

Any transportation company, person, firm or corporation in Massachusetts receiving bovine animals which for any reason are not accompanied by a permit of the Director of Animal Industry, and by a certificate of tuberculin test as provided in section 1 of this order shall immediately notify either the local inspector of animals or the Division of Animal Industry. The animals so received must not be removed from the premises where received except by order of said Director, and in the case of a transportation company they shall not be allowed to go out of the possession of said transportation company or its agent, or off the premises where they are unloaded, except by permission obtained from the Director or one of his agents.

If for any cause bovine animals are brought within the limits of the state in violation of the provisions of this order, it shall be the duty of the local inspector of animals of any town in which they arrive to quarantine them and to communicate with the office of the Division of Animal Industry in regard to same. Their treatment or disposal shall be in accordance with the provisions of section 6 hereof.

Section 6. Any bovine animals brought within the limits of the Commonwealth not consigned for immediate slaughter and not accompanied by a certificate of tuberculin test as provided in section 1 of this order must be held and tuberculin tested by an accredited veterinarian and at the expense of the owner or person in whose charge such animal or animals are held. Any animal which reacts to such tuberculin test shall be immediately tagged, branded and condemned and killed in accordance with section 11, chapter 129 of the General Laws.

The provisions of this order do not apply to animals which are under control of the Bureau of Animal Industry of the United States Department of Agriculture.

This order shall be published by the Inspector of Animals in each city and town in the Commonwealth by posting a copy hereof in a conspicuous public place within the city or town for which he is Inspector of Animals.

EVAN F. RICHARDSON,
Director of Animal Industry.

Approved:

W. A. L. BAZELEY, *Commissioner of Conservation.*

Approved in Council April 1, 1931.

WILLIAM L. REED, *Executive Secretary.*

* The certificate of tuberculin test must indicate test made within one year of date of shipment if on cattle from an accredited herd or from a modified accredited area. The certificate of tuberculin test must indicate test made within six months of date of shipment if on cattle from herds in which no reactors were found at time of last entire herd test.

The above order protects our Massachusetts diarymen in requiring that all dairy and breeding cattle eligible for shipment into this State must be qualified to go into any herd maintained under Federal and State supervision.

Origin of the 10,306 Dairy Cows handled at Brighton Market

		Released on Papers	Tested	Total
Massachusetts	.	1,646	7	1,653
Maine	.	5,031	4	5,035
New Hampshire	.	1,753	15	1,768
Vermont	.	1,099	12	1,111
New York	.	538	11	549
Wisconsin	.	25	0	25
Ohio	.	18	0	18
Rhode Island	.	4	0	4
Connecticut	.	3	0	3
Canada	.	139	1	140
		10,256	50	10,306

Disposition:

To Massachusetts	.	8,971	To Vermont	.	8
" Rhode Island	.	1,151	" New York	.	7
" Maine	.	115	Reacted and killed	.	2
" New Hampshire	.	35			
" Connecticut	.	17	Total	.	10,306

There were 15,709 dairy cattle received at other points on permit from the following states: Canada, 448; Connecticut, 728; Delaware, 3; Idaho, 1; Illinois, 40; Iowa, 1; Maine, 1,339; Michigan, 96; Minnesota, 26; Missouri, 81; New Hampshire, 2,010; New Jersey, 49; New York, 1,888; Ohio, 2,217; Pennsylvania, 147; Rhode Island, 356; Tennessee, 61; Texas, 1; Vermont, 4,372; Washington, 2; Wisconsin, 1,844. One hundred and seventy-two (172) of this 15,709 were tested after arrival, 18 reacting. In addition to the dairy cattle there were received on permits 3,920 beef cattle, and 1,058 cattle for exhibition purposes. This compares with 12,349 dairy cattle, 2,871 beef cattle and 1,156 cattle for exhibition purposes in 1930.

**RECEIPTS OF LIVESTOCK AT THE QUARANTINE STATIONS AT
BRIGHTON AND SOMERVILLE**

There were received at these stations during the year the following: 69,963 cattle; 126,899 calves; 336,372 sheep and lambs; 665,266 swine.

CONTAGIOUS DISEASES OF SWINE

Service in connection with the immunization and treatment of swine in prevention of hog cholera and its allied diseases has been continued under the general plan employed during the past few years. This service is rendered without cost to such owners as apply, and who agree to comply with such regulations as are required by this Division. During the year there were 86,031 treatments applied in connection with hog cholera, as compared with 88,740 treatments during the year 1930; and 31,401 treatments for hemorrhagic septicemia, as compared with 23,166 in 1930.

RABIES

During the year 1931 four hundred and eighty-four animals affected with rabies have been recorded, the disease occurring in all sections of the state. As in other years, the method of control has been through the destruction of animals showing definite symptoms of disease and holding under restraint (quarantine) suspected animals and animals known to have been in contact with a diseased animal. Suspected animals are held until a definite diagnosis is made. Contact animals are held 90 days from date of contact, a period which is shortened in animals that are given anti-rabic treatment to 21 days from date of completion of treatment. As shown in the tabulation, 16 contact animals developed the disease and died or were destroyed, 15 were killed by owners, showing no symptoms of rabies, 518 including 10 cases not disposed of at end of the year 1930 were released, and 27 contact animals were still under restraint at the end of the year.

Under Section 6, Chapter 111 of the General Laws, the State Department of Public Health has ruled that bites inflicted by dogs are to be included in the list of diseases declared to be dangerous to the public health and so, in accordance with that ruling, such dogs must be reported to this Division. Under this requirement there have been reported 4,944 persons bitten. Under Department Order No. 34, Section 3, such dogs if located "shall be quarantined for a period of 14 days for observation, at the end of which period if no symptoms of rabies have developed said animals may be released," etc. Under this order, 4,896 dogs, cats, etc., were restrained. Of the persons bitten, 104 were bitten by animals affected with rabies. When an animal that has bitten a person dies or is killed, it is required that the head of the animal be forwarded to the Department of Public Health Laboratory for definite diagnosis. During the year the heads of 523 animals have been received, 315 of which were found positive for rabies, 7 on which no definite diagnosis could be made, and 201 negative or not affected with rabies.

A large number of cases of rabies that developed in the early spring were of sufficient concern to warrant the distribution on April 7 of a letter addressed to the Mayors of Cities and the Chairmen of Selectmen of Towns, calling their attention to the serious situation and asking them to co-operate in enforcing the laws of the Commonwealth governing that disease. Later, as this situation continued with almost no abatement, this Division and the Department of Public Health co-operated in holding a mass meeting at the State House on June 25 to which were invited Mayors, Selectmen, Chiefs of Police, and Inspectors of Animals. As a result of that meeting, which was largely attended, quarantine regulations were put on in many towns and cities in the eastern part of the state; and we believe the publicity given at that time and the regulations issued as a result of that meeting were largely instrumental in the decrease in the number of animals affected with rabies from 739 last year to 484 this year.

The eradication of rabies is to a large extent in the hands of the officials of the cities and towns of the Commonwealth, and we sincerely hope that their co-operation may be continued in the prevention of this dread disease.

The following table is a tabulation of cases recorded for the year:

RABIES

	SHOWING SYMPTOMS			CONTACT			BITE CASES			Total ^{II}	
	Positive	Negative	Questionable	Released	Killed or died*	Killed positive	Disposal pending	Released	Killed—no examination	Killed negative	
Forward, year 1930				10				18			28
December, 1930	52	1		49	2	2		187	1	2	295
January, 1931	42	3	2	22	1	2		235	1	1	317
February	46	4	1	42	3	1		188	1	3	288
March	68	2	1	212	1	4		283	1	3	573
April	46	9	2	60	1	1		504	1	11	635
May	40	7	1	39	2	1		466	2	17	575
June	46	10	1	28	3	1		559	3	19	669
July	40	12	2	31	2	1		757	3	22	870
August	28	8	1	10	1	—		553	2	12	615
September	20	1	1	9	—	—		490	3	19	543
October	22	6	—	6	—	3		363	4	7	411
November	18	—	—	—	—	1		255	2	4	280
Forward	—	—	—	—	—	27		—	—	5	32
Total	468	62	10	518	15	16	27	4,858	24	128	6,131
The above record refers to the following animals:											
Cats	8	3	1	8	2	—	5	26	—	20	73
Cattle	8	3	—	32	1	3	—	—	—	—	47
Dogs	452	55	9	314	12	13	22	4,832	24	107	5,845
Horses	—	—	—	3	—	—	—	—	—	—	3
Swine	—	—	1	161	—	—	—	—	—	—	162
Squirrel	—	—	—	—	—	—	—	—	1	—	1

Total positive cases of Rabies, 484

* No symptoms of rabies.

BANG ABORTION DISEASE CONTROL

The accreditation of herds as free from Bang Abortion Disease and the awarding of an official certificate under Massachusetts regulations and requirements apparently is appreciated by the breeders of purebred cattle in this State. There are at present eight accredited herds comprising 248 animals; 16 applications comprising 514 animals on file for accreditation; also a number of herd owners who have not made application as yet but are preparing their herds for the test. Two shipments, comprising five animals, have been placed under quarantine for the reason that they were imported into Massachusetts in violation of Department regulations and which were known to have been reactors to the abortion test.

During the fiscal year there were submitted to this Division 9,217 blood samples for agglutination tests, compared with 7,782 received during the year 1930 and 3,800 for the year 1929. Blood samples submitted to this Division are examined or tested without expense to the owner. Containers or vials for obtaining these blood samples are furnished on request and without cost.

MISCELLANEOUS DISEASES

Actinomycosis: Six head of cattle affected with this condition were reported.

Anthrax: Two cases reported in cattle were confirmed by laboratory examination.

Blackleg: Preventive treatment was applied to 886 head of cattle on 99 premises located in 39 towns.

Glanders: Twenty-two horses were subjected to test one of which proved to be diseased. This horse was condemned and destroyed.

Mange: This condition was found in 29 head of cattle located on five premises.

Tuberculosis in Swine: Three cases were reported and diagnosis confirmed.

Many specimens were submitted for examination and diagnosis for actinomycosis, anthrax, botulism, bone infection, glanders, hemorrhagic septicemia, tuberculosis, tumors, etc.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of premises where kept was issued November 20, 1930, calling for completion of the inspection on or before February 1, 1931.

From the reports received from the Inspectors of Animals of all cities and towns in the Commonwealth, there were inspected on 20,982 premises: 207,128 head of cattle, 9,994 sheep, 82,509 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Barnstable, Greenfield, Lowell, Pittsfield, Springfield, Taunton and Worcester. As usual, these meetings were well attended and from the interest shown it is believed are of value to these officials.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, chapter 245, Acts of 1931	\$4,000.00
Expended during the year for the salary of the Director	4,000.00
Appropriation for personal services of clerks and stenographers, chapter 245, Acts of 1931 ..	\$21,000.00
Supplementary Budget, Chapter 460, Acts of 1931	850 00
 Total amount appropriated	 \$21,850.00
Expended during the year for personal services of clerks and stenographers	\$20,883.19
Unexpended balance	966.81
 Appropriation for services other than personal, including printing the annual report, travel- ing expenses of the Director, office supplies and equipment and rent, Chapter 245, Acts of 1931	 \$14,035.00
Brought forward from 1930 appropriation	112.30
 Total amount appropriated	 \$14,147.30
Expended during the year for the following purposes:	
Books and Maps	\$95.86
Express and messenger service.....	378.47
Postage	2,186.20
Printing report	79.38
Other printing.....	1,181.91
Telephone and telegrams	921.09
Stationery and office supplies.....	3,848.05
Rent and office equipment	3,787.65
Travel	1,411.87
 Total Expenditure	 \$13,890.48
Unexpended balance	256.82
	\$14,147.30

Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, chapter 245, Acts of 1931	\$73,000.00
Supplementary Budget, chapter 460, Acts of 1931	6,000.00
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Total amount appropriated	\$79,000.00
Expended during the year for the following purposes:	
Services of salaried agents	\$40,222.52
Services of per diem agents	37,417.00
Labor hired	106.00
<hr/>	<hr/>
Total expenditure.....	\$77,745.52
Unexpended balance	1,254.48
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Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, chapter 245, Acts of 1931	\$37,500.00
Supplementary Budget, chapter 460, Acts of 1931	800.00
Brought forward from 1930 Appropriation.....	26.47
<hr/>	<hr/>
Total amount appropriated	\$38,326.47
Expended during the year for the following purposes:	
Traveling expenses of salaried agents.....	\$19,140.32
Traveling expenses of per diem agents	16,148.38
<hr/>	<hr/>
Total expenditure.....	\$35,288.70
Unexpended balance	3,037.77
<hr/>	<hr/>
Appropriation for reimbursement of owners of horses killed during the present and previous years; travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, chapter 245, Acts of 1931	\$8,000.00
Expended during the year for the following purposes:	
Four horses condemned and killed on account of glanders	\$300.00
Supplies for veterinary inspectors	306.23
Laundry	413.77
Antiseptics, biologics and disinfectants	437.74
Thermometers, needles, syringes, etc.....	494.53
Ear-tags, punches, chains, etc.....	2,332.97
Expenses of killing and burial	227.50
Expenses of travel allowed inspectors of animals.	1,094.25
Quarantine expenses	919.75
Sundries	15.90
<hr/>	<hr/>
Total expenditure.....	\$ 6,542.64
Unexpended balance	1,457.36
<hr/>	<hr/>
	\$8,000.00

Appropriation for reimbursement of owners of tubercular cattle killed, as authorized by section twelve A of chapter 129 of the General Laws, inserted by section 1 of chapter 304 of the Acts of 1924, and in accordance with certain provisions of law and agreements made under authority of section 33 of chapter 129 of the General Laws, as amended during the present and previous year, chapter 245, Acts of 1931

\$800,000.00
12.15

Brought forward from 1930 appropriation

\$800,012.15

Total amount appropriated

\$800,012.15

Expended during the year for the following:
15,886 head of cattle killed (chapter 129, General
Laws as amended)

\$687,004.98

259 head of cattle killed (physical cases including
no lesion cases)

6,125.00

\$693,129.98

106,882.17

\$800,012.15

Total expenditure

Unexpended balance

Reimbursement of towns for inspectors of animals:

Appropriation for the reimbursement of certain towns for compensation paid to inspectors of animals, chapter 245, Acts of 1931

\$5,500.00

Expended during the year for reimbursement of certain towns

\$4,951.41

548.59

\$5,500.00

Unexpended balance

The average amount paid for cattle slaughtered under the provisions of Chapter 129, General Laws, as amended, was \$62.73 for registered purebred cattle and \$41.90 for grade cattle.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$17; for Hemorrhagic Septicemia treatments at Brighton \$648.90, and for damage to State-owned motor vehicle, \$47.

Respectfully submitted,

EVAN F. RICHARDSON,
Director.





The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

Year ending November 30, 1932

Government Documents
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The Commonwealth of Massachusetts

DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY

To the Commissioner of Conservation:—

The report of the work of this Division for the year ending November 30, 1932, is herewith submitted.

BOVINE TUBERCULOSIS

Eradication of bovine tuberculosis is the most important activity of this Division. To November 30th, 1932, we have received petitions for the area test and quarantine (Chapter 129, Section 33 B, General Laws, Tercentenary Edition) from 276 towns and cities in the Commonwealth. This number does not include the 15 towns in Barnstable County in which the area test was completed in the early part of 1929, making a total of 291 of the 355 cities and towns of the Commonwealth. Of the 64 remaining cities and towns which have not as yet filed petitions for the area test a large number of them are in the eastern part of the State or within the metropolitan area in which are very few cattle. In these 64 cities and towns a large number of the cattle, however, are already under State and Federal supervision.

The area test was completed in Barnstable County and that county declared a modified accredited area in June, 1929. The area test was applied in 57 towns in 1931 and Rockport, Gloucester, Douglas, and Heath were declared modified accredited areas. This year the area test has been completed in 81 towns and 23 of these towns declared modified accredited areas making a total at the present time of 157 towns in which the area test has been completed and 42 towns which have been declared modified accredited areas.

Following is the list of cities and towns which have filed petitions:

Berkshire County

*Adams	*Hancock	New Marlborough	*Tyringham
*Alford	*Hinsdale	*North Adams	Washington
Becket	*Lanesborough	Otis	West Stockbridge
*Clarksburg	*Lee	Pittsfield	*Williamstown
*Dalton	*Lenox	*Richmond	*Windsor
Egremont	*Monterey	Sandisfield	
*Florida	Mount Washington	Sheffield	
*Gt. Barrington	*New Ashford	*Stockbridge	

Bristol County

Dighton	*Fall River	Norton	Taunton
Easton	Freetown	*Rehoboth	Westport
*Fairhaven	North Attleborough		

Essex County

Amesbury	Hamilton	*Merrimac	Rowley
*Andover	*Haverhill	Methuen	Salem
Beverly	*Ipswich	*Middleton	Salisbury
Boxford	Lawrence	Newbury	Saugus
*Danvers	Lynn	Newburyport	Swampscott
*Essex	Lynnfield	*North Andover	Topsfield
**Gloucester	Manchester	Peabody	Wenham
Georgetown	Marblehead	**Rockport	West Newbury

Franklin County

**Ashfield	*Erving	**Monroe	**Shelburne
*Bernardston	*Gill	*Montague	*Shutesbury
**Buckland	*Greenfield	*New Salem	*Sunderland
**Charlemont	**Hawley	*Northfield	*Warwick
**Colrain	**Heath	*Orange	*Wendell
**Conway	*Levett	**Rtowe	*Whately
*Deerfield	*Leyden		

Hampden County

*Agawam	**Granville	Monson	**Tolland
**Blandford	Hampden	**Montgomery	*Walc
*Brimfield	*Holland	Palmer	West Springfield
*Chester	Holyoke	**Russell	Westfield
Chicopee	*Longmeadow	Southwick	*Wilbraham
*East Longmeadow	Ludlow	Springfield	

<i>Hampshire County</i>			
*Amherst	*Goshen	**Middlefield	Southampton
Belchertown	Granby	Northampton	*Ware
**Chesterfield	Greenwich	Pelham	**Westhampton
**Cummington	Hadley	**Plainfield	Williamsburg
Easthampton	*Hatfield	Prescott	**Worthington
Enfield	*Huntington	South Hadley	
<i>Middlesex County</i>			
Acton	*Dracut	Lowell	*Sudbury
*Ashby	Dunstable	*Marlborough	Tewksbury
Ashland	*Framingham	*Maynard	Townsend
*Ayer	Groton	*Natick	Tyngsboro
Bedford	Holliston	North Reading	*Wayland
Billerica	Hopkinton	Pepperell	Westford
*Boxborough	Hudson	Reading	Weston
*Carlisle	*Lexington	Sherborn	Wilmington
Chelmsford	Lincoln	*Shirley	
*Concord	Littleton	Stow	
<i>Norfolk County</i>			
Avon	Foxborough	Norwood	Sharon
*Bellingham	*Franklin	*Plainville	*Walpole
Braintree	*Medfield	Quincy	*Westwood
Canton	*Medway	Randolph	Weymouth
Cohasset	*Millis		*Wrentham
Dover	*Norfolk		
<i>Plymouth County</i>			
*Bridgewater	Hingham	Mattapoisett	Plymouth
*E. Bridgewater	*Hull	*Middleborough	West Bridgewater
*Halifax	Lakeville		Whitman
<i>Worcester County</i>			
*Ashburnham	*Gardner	*North Brookfield	Sturbridge
Athol	*Grafton	Northborough	*Sutton
Auburn	*Hardwick	*Northbridge	Templeton
*Barre	Harvard	*Oakham	Upton
*Berlin	Holden	*Oxford	*Uxbridge
*Blackstone	*Hopedale	*Paxton	Warren
Bolton	Hubbardston	Petersham	Webster
Boylston	Lancaster	Phillipston	*West Boylston
*Brookfield	Leicester	Princeton	West Brookfield
*Charlton	*Leominster	Royalston	Westborough
Clinton	Lunenburg	*Rutland	*Westminster
*Dana	*Mendon	Shrewsbury	Winchendon
**Douglas	Milford	*Southborough	
*Dudley	Millbury	Southbridge	
*E. Brookfield	*Millville	*Spencer	
Fitchburg	*New Braintree	*Sterling	

*Area test completed.

**Modified accredited areas.

There were made during the year 237,718 tuberculin tests, or an increase of 72,085 over the preceding year.

For convenience the record of the work on tuberculosis eradication is divided into three classes:

(1) THE EXAMINATION OF CATTLE REPORTED AS SHOWING PHYSICAL SYMPTOMS OF DISEASE

The work of the department in connection with this classification is authorized under Chapter 129, Section 28 (requiring report of the existence of contagious disease in domestic animals), Section 11 (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

During the year there has been reported 291 head of cattle included in this classification. Of this number 187 were examined physically, condemned and killed, 185 proving to be affected with tuberculosis and two showing no lesions of that disease. On 15 animals a so-called "permit to kill" was granted, as there was a doubt on physical examination as to whether the condition of the animal was due to tuberculosis or not. Five of these animals proved to be affected with tuberculosis and 10 proved to be affected with some other condition. Twenty-two animals reported died prior to being examined. Fifty-eight animals were released as physical examination did not indicate tuberculosis. In the case of 9 animals no disposition was made, and these 9 cases have been carried forward for action next year.

(2) THE TUBERCULIN TESTING OF CATTLE

The following tables are a record of the work accomplished in the testing of cattle at request of owner:

TUBERCULIN TESTS BY MONTHS 1932

	First Tests			Second Tests			Third or More Tests			Accredited			Reacts	Heads	TOTAL Head	Reacted
	Herd	Head	Reacted	Herd	Head	Reacted	Herd	Head	Reacted	Herd	Head	Reacted				
1931																
December	.	.	.	542	1,794	4,632	282	2,004	118	568	9,618	151	368	6,091	45	1,760
January	.	.	.	364	3,110	1,030	275	1,790	107	578	8,677	253	365	5,520	41	1,582
February	.	.	.	320	3,009	1,119	301	1,792	100	610	9,310	190	294	4,480	33	1,525
March	.	.	.	495	3,947	1,642	480	4,051	210	489	8,578	201	268	4,046	14	1,732
April	.	.	.	648	4,502	2,040	439	2,939	132	652	9,976	237	571	8,683	47	2,310
May	.	.	.	934	6,603	2,994	779	4,777	253	533	9,568	344	450	7,885	38	2,403
June	.	.	.	859	7,009	2,986	633	3,650	166	962	12,766	240	3,112	10	2,694	27,773
July	.	.	.	662	7,703	4,292	360	2,419	121	326	5,596	206	50	633	2	26,537
August	.	.	.	159	1,592	603	515	3,347	167	632	7,884	139	187	2,570	51	12,940
September	.	.	.	187	1,621	738	449	3,238	107	597	6,838	82	160	1,708	33	1,493
October	.	.	.	304	6,969	939	502	2,698	198	749	8,548	146	316	3,334	21	1,393
November	.	.	.	195	1,424	498	325	1,917	88	727	10,011	143	311	5,194	16	1,871
Total	.	.	.	5,669	43,310	18,086	5,038	33,582	1,767	7,423	107,370	-	3,389	53,456	351	21,719
																237,718
Pure Breds																22,564
Grades																9.4%
																2.7%
																10.5%
																1014 reacted 21,550 reacted

TUBERCULIN TESTS BY COUNTIES

First TEST		Second TEST		Third or More TESTS		ACCREDITED		TOTAL									
Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Herds	Head	Reacted	Total		
Barstable	1	0	2	0	22	4	34	2	543	33,608	941						
Berkshire	3,137	561	466	3,458	52	885	15,607	230	11,406	98	2,434	13,357	2,176				
Bristol	3,221	1,986	268	1,712	80	517	6,940	96	77	1,484	14	1,220	5,507	65			
Dukes	66	2,016	384	1,911	0	206	4	31	287	2	65	50	7				
Essex	3,871	4,370	710	7,54	70	513	6,906	140	218	3,193	21	1,651	16,161	2,247			
Franklin	868	2,429	888	3,65	58	854	10,62	109	930	13,048	13	3,406	31,553	890			
Hampshire	370	2,704	787	470	2,737	76	373	4,705	85	235	3,482	10	1,363	12,780	1,053		
Impedon	432	2,704	787	470	2,737	86	741	10,166	178	1,994	17	1,994	20,278	1,008			
Middlesex	592	4,793	2,688	393	2,759	240	751	11,469	400	246	3,597	40	1,982	22,618	3,368		
Nantucket	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Norfolk	1,510	725	324	1,487	193	473	6,550	162	177	2,333	20	1,219	11,681	1,100			
Plymouth	1,813	662	113	943	53	315	4,378	144	200	2,350	61	974	9,484	920			
Suffolk	0	0	0	0	0	0	0	3	8	69	1	1156	1,556	1			
Worcester	1,519	15,395	7,062	1,498	12,203	859	1,957	29,687	808	380	7,412	52	6,436	64,697	8,781		
Total	5,669	43,310	18,086	5,038	33,552	1,767	7,423	107,370	2,360	3,589	53,456	351	21,719	237,718	22,564		

COUNTY STATISTICS

COUNTIES	CATTLE Herds	CENSUS* Head	UNDER TEST**			%	LAST TEST		ACCREDITED Herds	Head
			Herds	Head	%		CLEAN Herds	Head		
Barnstable . . .	675	2,217	630	2,208	100		319	814	311	1,394
Berkshire . . .	2,149	25,882	1,681	22,113	85		796	7,663	856	13,865
Bristol . . .	2,471	22,105	747	7,990	36		416	3,393	218	2,973
Dukes . . .	142	780	67	502	64		31	213	33	282
Essex . . .	1,578	13,724	1,015	9,062	66		646	4,375	325	4,252
Franklin . . .	2,220	21,255	2,240	20,426	100		1,175	6,398	1,045	13,869
Hampden . . .	1,834	14,620	952	8,245	56		570	3,243	335	4,499
Hampshire . . .	2,046	19,319	1,317	13,233	68		713	5,018	531	7,054
Middlesex . . .	2,609	22,911	1,310	13,180	57		746	6,131	380	5,013
Nantucket . . .	35	480	7	236	50				7	236
Norfolk . . .	1,207	9,018	728	6,620	73		452	3,239	225	2,777
Plymouth . . .	1,868	10,702	784	6,505	60		462	2,571	231	2,577
Suffolk . . .	26	188	8	73	38		1	13	7	60
Worcester . . .	5,291	49,582	3,216	35,471	71		2,137	18,486	759	12,345
Total . . .	24,151	212,783	14,702	145,864	68		8,464	61,557	5,263	71,196

*Taken in December, 1931. **November 30, 1932.

The above figures indicate:

An increase of 5,045 herds under test	1931	1932
An increase of 34,044 cattle under test	9,657	14,702
An increase of 4,792 herds no reactors last test	111,820	145,864
An increase of 36,657 cattle no reactors last test	8,935	13,727
An increase of 1,172 herds accredited	96,096	132,753
An increase of 19,101 cattle accredited	4,091	5,263
An increase of 52,095	52,095	71,196

The average salvage received by owners of reacting cattle for this year was \$13.88 as compared with \$19.23 in 1931.

The Brighton Market handled this year 10,486 dairy cows. Of this number, 44 were held for retest and released.

Inoculations for the prevention of hemorrhagic septicemia or shipping fever, so-called, is given at request of the owners and practically at cost upon the arrival of the cattle at the market. There were 3,952 cattle immunized.

Four thousand one hundred and twenty-two (4,122) Massachusetts reactors were received at the yards during the year; 3,672 arriving by truck and 450 arriving by train. These cattle were identified and released for immediate slaughter on special permits to slaughtering establishments under Federal inspection and to establishments on the premises of the Brighton Abattoir. All the trucks and cars in which these reactors were brought in were, prior to leaving, disinfected under supervision. The Sales Barn has been cleaned and disinfected at regular intervals under the supervision of the United States Bureau of Animal Industry, and the 1,580 trucks taking dairy cows from this market were disinfected under our supervision.

(3) SUPERVISION OF INTERSTATE MOVEMENT OF CATTLE INTO MASSACHUSETTS

Origin of the 10,486 Dairy Cows handled at Brighton Market

		Released on Papers	Tested	Total
Massachusetts . . . . .	. . . . .	1,848	2	1,850
Maine . . . . .	. . . . .	5,157	5	5,162
New Hampshire . . . . .	. . . . .	1,825	19	1,844
Vermont . . . . .	. . . . .	1,170	18	1,188
New York . . . . .	. . . . .	297	0	297
Wisconsin . . . . .	. . . . .	108	0	108
Rhode Island . . . . .	. . . . .	3	0	3
Connecticut . . . . .	. . . . .	13	0	13
Canada . . . . .	. . . . .	21	0	21
		10,442	44	10,486

Disposition

To Massachusetts . . . . .	. . . . .	8,940	To New Hampshire . . . . .	. . . . .	19
" Rhode Island . . . . .	. . . . .	1,448	" Connecticut . . . . .	. . . . .	5
" Maine . . . . .	. . . . .	72	" Vermont . . . . .	. . . . .	2
Total . . . . .	. . . . .				10,486

There were 19,307 dairy cattle received at other points on permit from the following states: Canada, 974; Connecticut, 1198; Indiana, 49; Iowa, 1; Louisiana, 9; Maine, 1201; Maryland, 1; Michigan, 225; Minnesota, 196; Missouri, 26; New Hampshire, 2981; New Jersey, 28; New York, 1330; Ohio, 2632; Pennsylvania, 425; Rhode Island, 368; Tennessee, 9; Vermont, 5110; Washington, 5; Wisconsin, 2539. Three hundred and sixteen (316) of the 19,307 were tested after arrival, 10 reacting. In addition to the dairy cattle there were received on permits 3,008 beef cattle, and 1,299 cattle for exhibition purposes. This compares with 15,709 dairy cattle, 3,920 beef cattle and 1,058 cattle for exhibition purposes in 1931.

RECEIPTS OF LIVESTOCK AT THE QUARANTINE STATIONS AT BRIGHTON AND SOMERVILLE

There were received at these stations during the year the following: 58,641 cattle; 112,525 calves; 331,340 sheep and lambs; 634,841 swine.

RABIES

During the year 1932, three hundred (300) animals were recorded affected with rabies as compared with 484 cases in the previous year. Of this number 222 were dogs as compared with 465 dogs last year. Of the 79 positive contact cases 71, (55 sheep, 16 goats), occurred on one farm where a rabid dog got into an enclosure where these animals were confined; a startling example of the damage one rabid dog may inflict.

In addition to the decrease in the number of animals reported as "showing symptoms" 276 as compared with 540 in the year 1931 (see table) there was also a marked decrease in the number of "contact" animals, 285 compared with 566 in 1931 and 4,742 "bite cases" compared with 4,997 in 1931.

The following table is a tabulation of cases recorded for the year:

	RABIES											
	SHOWING SYMPTOMS			CONTACT				BITE CASES				
	Positive	Negative	Questionable	Released	Killed or died*	Killed positive	Disposal pending	Released	Killed—no examination	Killed negative	Disposal pending	Total
Forward, year 1931	-	-	-	27	-	-	-	5	-	-	-	32
December, 1931	20	3	-	15	-	1	-	232	3	7	-	281
January, 1932	20	1	-	8	-	2	-	237	3	10	-	281
February	19	4	-	19	-	1	-	232	-	1	-	276
March	32	3	-	41	-	1	-	326	2	3	-	408
April	45	6	-	32	3	71	-	455	-	9	-	621
May	23	8	-	19	1	-	-	554	3	15	-	623
June	25	4	-	37	2	2	-	542	4	10	-	626
July	15	1	4	16	-	-	-	580	1	10	-	627
August	11	4	1	10	-	1	-	514	2	10	-	553
September	6	8	1	-	-	-	-	369	1	6	-	391
October	1	5	1	-	-	-	-	279	3	10	-	299
November	4	1	-	-	-	-	-	218	1	6	-	230
Forward	-	-	-	-	-	-	3	-	-	-	84	87
Total	221	48	7	224	6	79	3	4,543	23	97	84	5,335
The above record refers to the following animals:												
Cats	-	1	1	1	2	-	-	24	2	4	-	35
Cattle	-	-	-	-	-	1	-	-	-	-	-	1
Dogs	215	47	6	223	4	7	3	4,518	21	93	84	5,221
Horses	1	-	-	-	-	-	-	-	-	-	-	1
Goats	2	-	-	-	-	16	-	-	-	-	-	18
Sheep	3	-	-	-	-	55	-	-	-	-	-	58
Monkey	-	-	-	-	-	-	-	1	-	-	-	1

Total positive cases of rabies, 300.

*No symptoms of rabies

72 persons were bitten and 159 persons were exposed by direct contact, through handling, etc. rabid dogs. Laboratory examination was made of the brain of 277 animals. 140 were positive, 133 negative, and 4 examinations unsatisfactory.

BANG ABORTION DISEASE CONTROL

The interest in Bang Abortion Disease control continues. The breeders of pure-bred cattle are very much concerned in eradicating Bang Disease from their herds as the advantageous sale of their animals depends upon freedom from the disease. Accredited certificates are issued by this Division when herds placed under supervision pass three semi-annual tests.

There are at present twelve accredited herds comprising 476 animals; 27 applications comprising 842 animals on file for accreditation. During the fiscal year there were submitted to this Division 10,050 blood samples for the agglutination test as compared with 9,217 received during the year 1931 and 7,782 for the year 1930. Blood samples submitted to this Division are examined or tested without expense to the owner. Containers or vials for obtaining these blood samples are furnished on request and without cost.

An order is in effect to prohibit the importation into the Commonwealth of Massachusetts of any bovine animal which has aborted or is known to be positive to the blood test unless a special permit is obtained. Forty States have promulgated rules and regulations regarding the importation into their respective States of animals known to be affected with Bang Abortion Disease.

MISCELLANEOUS DISEASES

Actinomycosis: Eight head of cattle affected with this condition were reported.

Blackleg: Preventive treatment was applied to 1,124 head of cattle on 137 premises located in 41 towns.

Glanders: Four horses were reported. Laboratory tests indicated that they were not affected with glanders.

Hog Cholera and Hemorrhagic Septicemia: During the year there were 90,444 treatments applied in connection with hog cholera, as compared with 86,031 treatments during the year 1931; and 20,879 treatments for hemorrhagic septicemia, as compared with 31,401 in 1931.

Mange: This condition was found in 7 head of cattle located on three premises.

Tuberculosis in Swine: Forty-nine cases found on post-mortem examination at time of slaughter were reported.

Specimens were submitted for examination and diagnosis for actinomycosis, anthrax, glanders, hemorrhagic septicemia, tuberculosis, tumors, etc.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of premises where kept was issued November 16, 1931, calling for completion of the inspection on or before January 15, 1932.

From the reports received from the Inspectors of Animals of all cities and towns in the Commonwealth, there were inspected on 24,146 premises: 212,783 head of cattle, 10,279 sheep, 91,060 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Greenfield, Pittsfield, Springfield, and Worcester.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, Chapter 170, Acts of 1932	\$4,000.00
Expended during the year for the salary of the Director.....	4,000.00
Emergency appropriation for personal services of clerks and stenographers, Chapter 69, Acts of 1932	\$ 1,500.00
Appropriation, Chapter 170, Acts of 1932.	22,800.00
Total amount appropriated	\$24,300.00
Expended during the year for personal services of clerks and stenographers.....	\$23,417.71
Unexpended balance	882.29
	\$24,300.00

Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, office supplies and equipment and rent, Chapter 170, Acts of 1932	\$14,000.00
Expended during the year for the following purposes:	
Books and maps	\$84.88
Express and messenger service	315.36
Postage	2,668.74
Printing report	46.62
Other printing	705.71
Telephone and telegrams	890.59
Travel	984.15
Stationery and office supplies	2,711.17
Rent and office equipment	5,442.68
 Total Expenditure	\$13,849.90
Unexpended balance	150.10
	<hr/>
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, Chapter 170, Acts of 1932	\$78,500.00
Transfer, Chapter 307, Acts of 1932	6,500.00
Brought forward from 1931 appropriation	12.50
 Total amount appropriated	\$85,012.50
Expended during the year for the following purposes:	
Services of salaried agents	\$43,099.00
Services of per diem agents	41,809.75
Labor hired	100.00
 Total expenditure	\$85,008.75
Unexpended balance	3.75
	<hr/>
Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, Chapter 170, Acts of 1932	\$28,400.00
Transfer, Chapter 307, Acts of 1932	1,500.00
Brought forward from 1931 appropriation	192.13
 Total amount appropriated	\$30,092.13
Expended during the year for traveling expenses of agents	\$30,090.76
Unexpended balance	1.37
	<hr/>
Appropriation for reimbursement of owners of horses killed during the present and previous years; travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, Chapter 170, Acts of 1932	\$6,600.00
Expended during the year for the following purposes:	

Supplies for veterinary inspectors.....	\$195.20
Laundry	405.70
Antiseptics, biologics and disinfectants	403.59
Thermometers, needles, syringes, etc.	481.63
Ear-tags, punches, chains, etc.	2,348.78
Expenses of killing and burial	206.00
Expenses of travel allowed inspectors of animals.....	559.85
Quarantine expenses	1,196.40
Sundries	5.75
 Total expenditure	 <u>\$5,802.90</u>
Unexpended balance	797.10
	 <u>\$6,600.00</u>
Appropriation for reimbursement of owners of tubercular cattle killed, as authorized by section twelve A of chapter 129 of the General Laws, inserted by section 1 of chapter 304 of the Acts of 1924, and in accordance with certain provisions of law and agreements made under authority of section 33 of chapter 129 of the General Laws, as amended during the present and previous year, chapter 170, Acts of 1932.....	\$750,000.00
Transferred, Chapter 307, Acts of 1932.....	8,000.00
 Balance of amount appropriated	 <u>\$742,000.00</u>
Brought forward from 1931 appropriation	106,882.17
 Total amount appropriated	 <u>\$848,882.17</u>
Expended during the year for the following:	
23,156 head of cattle killed (chapter 129, General Laws as amended)	\$793,244.32
183 head of cattle killed (physical cases including no lesion cases)	4,161.80
 Total expenditure	 <u>\$797,406.12</u>
Unexpended balance	51,476.05
 Reimbursement of towns for inspectors of animals:	 <u>\$848,882.17</u>
Appropriation for the reimbursement of certain towns for compensation paid to inspectors of animals, chapter 170, Acts of 1932.....	\$5,000.00
Brought forward from 1931 appropriation	10.00
 Total amount appropriated	 <u>\$5,010.00</u>
Expended during the year for reimbursement of certain towns	\$5,217.06
Deficiency	237.06

The average amount paid for cattle slaughtered under the provisions of Chapter 129, General Laws, as amended, was \$55.43 for registered purebred cattle and \$33.21 for grade cattle.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$15; for Hemorrhagic Septicemia treatments at Brighton \$592.70; and for damage to State-owned motor vehicles \$57.85.

Respectfully submitted,

EVAN F. RICHARDSON,

Director.

The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

Year ending November 30, 1933

Government Documents

Collection

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University of Massachusetts



Offices: 20 Somerset Street, Boston

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The Commonwealth of Massachusetts
DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY

To the Commissioner of Conservation:

The report of the work of this Division for the year ending November 30, 1933, is herewith submitted.

BOVINE TUBERCULOSIS

Eradication of bovine tuberculosis is the most important activity of this Division. To November 30, 1933, we have received petitions for the area test and quarantine (Chapter 129, Section 33B, General Laws, Tercentenary Edition) from 15 towns and cities in the Commonwealth, in addition to the 286 petitions received prior to this year, making a total of 301. Of the 54 remaining cities and towns which have not as yet filed petitions for the area test a large number of them are in the eastern part of the State or within the metropolitan area in which are very few cattle, and also in these 54 cities and towns a large number of the cattle are already under State and Federal supervision.

The area test was completed in Barnstable County and that county declared a modified accredited area in June, 1929. The area test was applied in 57 towns in 1931 and Rockport, Gloucester, Douglas, and Heath were declared modified accredited areas. In 1932 the area test was completed in 81 towns and 23 of those towns declared modified accredited areas. The present year 73 towns have been area tested, and 16 towns have been declared modified accredited areas, making a total to date of 230 towns in which the area test has been completed and 58 towns which have been declared modified accredited areas.

There were made during the year 265,260 tuberculin tests, or an increase of 27,542 over the preceding year.

For convenience the record of the work on tuberculosis eradication is divided into three classes:

**1. THE EXAMINATION OF CATTLE REPORTED AS SHOWING PHYSICAL SYMPTOMS
OF DISEASE**

The work of the department in connection with this classification is authorized under Chapter 129, Section 28 (requiring report of the existence of contagious disease in domestic animals), Section 11 (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

During the year there have been reported 119 head of cattle included in this classification. Of this number 87 were examined physically, condemned and killed, 85 proving to be affected with tuberculosis and two showing no lesions of that disease. On one animal a so-called "permit to kill" was granted, as there was a doubt on physical examination as to whether the condition of the animal was due to tuberculosis or not. This animal proved to be affected with tuberculosis. Four animals reported died prior to being examined. Twenty-four animals were released as physical examination did not indicate tuberculosis. In the case of 3 animals no disposition was made and these 3 cases have been carried forward for action next year.

2. THE TUBERCULIN TESTING OF CATTLE

The following tables are a record of the work accomplished in the testing of cattle at request of owner:

1933 — TUBERCULIN TESTS BY COUNTIES

	FIRST TEST		SECOND TEST		THIRD OR MORE TEST		ACCREDITED Herds Head Reacted	Herds Reacted	TOTAL Head Reacted
	Herds	Head Reacted	Herds	Head Reacted	Herds	Head Reacted			
Barnstable	67	113	31	60	1	279	1,494	36	283
Berkshire	729	5,436	1,155	412	3,290	58	1,013	13,420	238
Bristol	614	4,676	2,826	376	2,975	164	801	9,794	194
Dukes	19	111	46	24	133	7	17	141	6
Essex	254	1,607	693	263	1,170	30	930	9,284	136
Franklin	269	2,381	12	357	1,160	6	1,367	10,050	46
Hampden	269	2,381	330	2,232	48	725	6,163	83	304
Hampshire	365	3,317	1,630	347	2,328	83	1,071	10,541	153
Middlesex	852	5,866	3,063	651	3,942	151	1,397	17,121	251
Nantucket	1	4	0	0	0	0	1	61	0
Norfolk	154	673	197	135	567	36	604	10,071	166
Plymouth	401	1,665	627	400	1,603	65	685	7,271	204
Suffolk	0	0	0	0	0	0	2	239	8,816
Worcester	1,295	8,518	3,629	1,232	7,230	256	3,386	42,033	626
Total	5,112	34,755	14,656	4,558	26,690	905	12,278	133,464	2,139

1933 — TUBERCULIN TESTS BY MONTHS

1932	December	January	February	March	April	May	June	July	August	September	October	November	Total
1933	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	388	2,804	1,395	495	2,420	147	1,299	13,250	217	614	6,665	55	2,796
	542	4,450	2,209	711	3,449	94	1,163	13,634	330	403	6,079	51	2,819
	465	3,926	2,065	320	1,694	79	1,057	12,381	336	458	5,596	34	2,300
	282	2,045	941	347	2,138	87	806	10,307	205	289	4,029	24	1,725
	129	749	237	269	1,874	88	904	9,825	145	685	10,380	60	1,987
	589	4,200	1,509	379	2,688	90	947	11,768	188	461	7,974	42	2,366
	458	3,662	1,634	330	1,880	29	1,450	11,920	169	409	4,656	23	2,647
	512	3,317	1,209	288	1,626	40	932	9,044	94	206	2,934	29	1,933
	406	2,232	1,568	406	2,412	46	795	7,928	101	342	1,010	10	1,842
	452	2,435	1,054	293	2,479	77	808	8,355	56	417	4,449	13	1,970
	439	2,196	585	322	1,914	69	1,102	11,505	166	533	3,284	31	1,778
	449	2,700	1,160	398	2,116	59	1,015	13,547	132	503	8,595	32	2,365
	5,112	34,755	14,656	4,558	26,690	905	12,278	133,464	2,139	5,091	70,321	404	27,039

Purebreds: 35,506 tested; 887 reacted 2.5%.

Grades: 229,754 tested; 17,217 reacted 7.5%.

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COUNTY STATISTICS

COUNTIES	CATTLE Herds	CENSUS* Head	UNDER TEST** Herds	Under Head	%	LAST TEST CLEAN		ACCREDITED	
						Herds	Head	Herds	Head
Barnstable . . .	626	2,189	622	2,154	100	327	781	293	1,295
Berkshire . . .	2,265	26,840	2,330	26,972	100	1,244	9,096	1,040	17,214
Bristol . . .	2,545	19,259	1,315	12,298	63	834	5,897	306	4,295
Dukes . . .	141	823	85	585	71	48	247	33	288
Essex . . .	1,630	13,120	1,179	10,573	80	667	4,061	456	5,703
Franklin . . .	2,281	21,567	2,236	20,798	100	845	3,606	1,382	17,030
Hampden . . .	1,944	14,641	1,160	10,423	71	629	3,855	498	5,997
Hampshire . . .	2,141	20,267	1,613	16,009	79	828	5,287	735	9,839
Middlesex . . .	2,666	21,744	2,020	18,083	83	1,316	8,884	552	7,674
Nantucket . . .	32	465	8	230	50	1	4	7	226
Norfolk . . .	1,249	8,877	821	7,152	80	479	2,867	298	3,770
Plymouth . . .	1,913	10,953	1,130	8,189	74	719	3,645	338	3,769
Suffolk . . .	25	187	7	71	38	7	71		
Worcester . . .	5,498	48,721	4,315	43,801	90	2,585	18,560	1,469	22,036
Total . . .	24,956	209,653	18,841	177,318	84	10,529	66,861	7,407	99,136

*Taken in December, 1932. **November 30, 1933.

The above figures indicate:

	1932	1933
An increase of 4,139 herds under test	14,702	18,841
An increase of 31,454 cattle under test	145,864	177,318
An increase of 4,209 herds no reactors to last test	13,727	17,936
An increase of 33,244 cattle no reactors to last test	132,753	165,997
An increase of 2,144 herds accredited	5,263	7,407
An increase of 27,940 cattle accredited	71,196	99,136

In the cleansing and disinfection of premises from which reacting cattle have been removed, it is required that a disinfectant approved by the United States Bureau of Animal Industry must be used.

The local Inspector of Animals is instructed to inspect the premises after disinfection is completed and to report all repairs made, and is now required to report the name and quantity of disinfectant used. It is believed these requirements have resulted in more efficient disinfection, and are the principal factors in the decided drop in the number of reactors recorded in subsequent tests as shown by the table on page 3, the percentage in 1933 indicating 3.4% reactors to the first retest (second test) as compared with 5.2% for the year 1932, etc.

The average salvage received by owners of reacting cattle for this year was \$13.46, as compared with \$13.88 in 1932.

The Brighton Market handled this year 10,314 dairy cows. Of this number, 52 were held for retest and released.

Inoculations for the prevention of hemorrhagic septicemia or shipping fever, so-called, is given at request of the owners and practically at cost upon the arrival of the cattle at the market. There were 3,871 cattle immunized.

Three thousand fifty (3,050) Massachusetts reactors were received at the yards during the year; 3,007 arriving by truck and 43 arriving by train. These cattle were identified and released for immediate slaughter on special permits to slaughtering establishments under Federal inspection and to establishments on the premises of the Brighton Abattoir. All the trucks and cars in which these reactors were brought in were, prior to leaving, disinfected under supervision. The Sales Barn has been cleaned and disinfected at regular intervals under the supervision of the United States Bureau of Animal Industry, and the 1,253 trucks taking dairy cows from this market were disinfected under our supervision.

3. SUPERVISION OF INTERSTATE MOVEMENT OF CATTLE INTO MASSACHUSETTS
Origin of the 10,314 Dairy Cows handled at Brighton Market

	<i>Released on Papers</i>	<i>Tested</i>	<i>Total</i>
Massachusetts	1,904	7	1,911
Maine	4,914	3	4,917
New Hampshire	1,884	19	1,903
Vermont	1,204	21	1,225
New York	267	2	269
Ohio	45	0	45
Wisconsin	22	0	22
Rhode Island	21	0	21
Connecticut	1	0	1
	<hr/>	<hr/>	<hr/>
	10,262	52	10,314
	<i>Disposition</i>		
To Massachusetts	8,898	To New Hampshire	11
" Rhode Island	1,389	" Connecticut	8
" Maine	7	" Vermont	1
	<hr/>	<hr/>	<hr/>
Total			10,314

There were 22,208 dairy cattle received at other points on permit from the following states: Canada, 1,232; Connecticut, 1,586; Illinois, 36; Indiana, 216; Iowa, 50; Kentucky, 24; Maine, 1,921; Maryland, 1; Michigan, 147; Minnesota, 504; New Hampshire, 3,917; New Jersey, 41; New York, 779; Ohio, 2,682; Pennsylvania, 693; Rhode Island, 519; South Carolina, 1; Vermont, 5,712; Washington, 2; Wisconsin, 2,145. Three hundred and four (304) of the 22,208 were tested after arrival. In addition to the dairy cattle there were received on permits 3,886 beef cattle, and 1,399 cattle for exhibition purposes. This compares with 19,307 dairy cattle, 3,008 beef cattle and 1,299 cattle for exhibition purposes in 1932.

RECEIPTS OF LIVESTOCK AT THE QUARANTINE STATIONS AT BRIGHTON AND SOMERVILLE

There were received at these stations during the year the following: 72,855 cattle; 121,531 calves; 294,438 sheep and lambs; 637,887 swine.

RABIES

During the year 1933, 175 animals were recorded affected with rabies as compared with 300 cases in the previous year. Of these cases forty or about 25% occurred in the City of Boston.

In addition to the decrease in the number of animals reported as "showing symptoms" 222 as compared with 276 in the year 1932 (see table), there was also a marked decrease in the number of "contact" animals, 121 compared with 285 in 1932.

The following table is a tabulation of cases recorded for the year:

RABIES

	SHOWING SYMPTOMS			CONTACT			BITE CASES			Total			
	Positive	Negative	Questionable	Released	Killed or died*	Released	Killed positive	Disposal pending	Released	Killed — no examination	Killed negative	Disposal pending	
Forward, year 1932 . . .	1	-	-	3	-	-	-	-	84	-	-	-	87
December, 1932 . . .	8	1	-	25	-	-	-	-	245	2	7	-	288
January, 1933 . . .	8	4	-	26	-	-	-	-	245	3	4	-	290
February . . .	4	1	-	8	-	-	-	-	253	1	7	-	276
March . . .	7	5	-	1	-	-	-	-	308	2	4	-	327
April . . .	18	4	-	2	-	-	-	-	471	2	7	-	504
May . . .	16	7	-	5	-	-	-	-	573	2	9	-	612
June . . .	21	5	-	6	1	-	-	-	613	6	18	-	670
July . . .	18	1	3	23	2	-	-	-	608	4	20	-	679
August . . .	21	1	1	4	-	-	-	-	507	3	11	-	548
September . . .	12	2	-	2	-	-	-	-	443	-	14	-	473
October . . .	14	5	2	9	1	-	-	-	318	1	2	-	352
November . . .	29	2	-	-	1	-	-	-	245	-	8	-	285
Forward . . .	-	-	-	-	-	-	-	-	-	-	4	-	9
Total . . .	174	41	7	114	4	1	5	4,913	26	111	4	5,400	
The above record refers to the following animals:													
Cats . . .	2	1	1	1	1	-	-	12	-	22	-	-	40
Cattle . . .	1	1	-	2	-	-	-	-	-	1	-	-	5
Dogs . . .	171	37	6	111	3	1	5	4,901	26	87	4	5,352	
Swine . . .	1	-	-	-	-	-	-	-	-	-	-	-	1
Goats . . .	1	-	-	-	-	-	-	-	-	-	-	-	1
Squirrels . . .	-	-	-	-	-	-	-	-	-	1	-	-	1

Total positive cases, 175

*No symptoms of rabies.

Seventy-seven (77) persons were bitten by rabid dogs. Laboratory examination was made of the brains of 291 animals. One hundred thirty-six (136) were positive, 151 negative, and 4 examinations unsatisfactory.

BANG ABORTION DISEASE CONTROL

The number of States that require information regarding freedom from Bang Abortion Disease in connection with the interstate movement of cattle has increased each year, many States now requiring health certificates indicating agglutination test results, a few requiring that cattle consigned to their respective States must have passed a negative blood test within a given limit of time.

Massachusetts does not as yet require information regarding blood tests on interstate cattle but does, by Department Order No. 42, forbid the shipment of positive reactors as follows:

"Section 1. A bovine animal which has recently aborted or which has given a positive or suspicious reaction to the agglutination or complement fixation test for Bang Abortion Disease (Contagious or Infectious Abortion) shall not be shipped, driven, transported or moved into the Commonwealth of Massachusetts except upon and accompanied by a special permit issued by the Director of Animal Industry."

No permits have been issued this year except for immediate slaughter.

Eleven thousand, nine hundred seventy-three (11,973) blood samples were examined this year as compared with 10,050 for the year 1932.

While the technique of the examination by the agglutination test has practically been standardized, there is still a difference of opinion by authorities on Bang Abortion Disease as to the significance of positive results to agglutination titres of less than 1-100. Under the Massachusetts plan for the issuance of Bang Abortion Disease Free Accredited Herd certificates, it is required that no evidence of Bang Abortion Disease has been indicated by three consecutive blood tests of all bovine animals in the herd six months of age or over, the examination to indicate negative results to dilutions of 1-25 through 1-200, the records to indicate readings of 1-25, 1-50, 1-100, 1-200.

Under this plan eleven of the twelve herds which were accredited in 1932 have been reaccredited and ten additional herds have been awarded Abortion Disease Free Accredited certificates, making a total of twenty-one accredited herds comprising 865 animals.

The necessary work of the accreditation of a herd is conducted co-operatively by the State and owner. The drawing of the blood from the animal, the tagging and proper identification of each animal and the necessary sanitary procedure are arranged for by and at the expense of the owner. The examination of the blood is made without charge by the State through the Division of Animal Industry, or may, at the expense of the owner, be made by any laboratory which is approved by the Director and which laboratory furnishes the Director a copy of the report.

MISCELLANEOUS DISEASES

Actinomycosis: Twenty-two head of cattle affected with this condition were reported.

Blackleg: Preventive treatment was applied to 1,194 head of cattle on 122 premises located in 44 towns.

Glanders: Twelve horses were reported. Laboratory tests indicated that they were not affected with glanders.

Hog Cholera and Hemorrhagic Septicemia: During the year there were 85,099 treatments applied in connection with hog cholera; and 16,965 treatments for hemorrhagic septicemia.

Mange: This condition was found in 2 head of cattle located on two premises.

Tuberculosis in Swine: Thirty-seven cases found on post-mortem examination at time of slaughter were reported.

Specimens were submitted for examination and diagnosis for actinomycosis, anthrax, glanders, hemorrhagic septicemia, tuberculosis, tumors, etc.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of premises where kept was issued November 14, 1932, calling for completion of the inspection on or before January 1, 1933.

From the reports received from the Inspectors of Animals of all cities and towns in the Commonwealth, there were inspected on 24,956 premises: 209,653 head of cattle, 10,992 sheep, 74,569 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Greenfield, Pittsfield, Springfield, Worcester, and Barnstable.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, Chapter 174, Acts of 1933 (as reduced by Chapter 105) .	\$3,734.00
Expended during the year for the salary of the Director	\$3,733.33
Unexpended balance	0.67

	\$3,734.00
Appropriation for personal services of clerks and stenographers, Chapter 174, Acts of 1933, (as reduced by Chapter 105)	\$23,160.00
Expended during the year for personal services of clerks and stenographers	\$21,976.21
Unexpended balance	1,183.79

	\$23,160.00
Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, office supplies and equipment and rent, Chapter 174, Acts of 1933	\$14,400.00
Brought forward from 1932 appropriation	19.67
Brought forward from small items	14.42

Total amount appropriated	\$14,434.09

Expended during the year for the following purposes:

Books and maps	\$21.75
Express and messenger service	260.55
Postage	2,772.86
Printing report	37.12
Other printing	873.52
Telephone and telegrams	668.56
Travel	897.65
Stationery and office supplies	1,235.62
Rent and office equipment	5,862.20
 Total expenditure	 \$12,629.83
Unexpended balance	1,804.26
	 \$14,434.09

Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, Chapter 174, Acts of 1933 (as reduced by Chapter 105)

Allotment, Chapter 296, Acts of 1933

\$85,400.00
180.00

\$85,580.00

Total amount appropriated

Expended during the year for the following purposes:

Services of salaried agents	\$39,864.17
Services of per diem agents	40,817.90
Labor hired	104.00
 Total expenditure	 \$80,786.07
Unexpended balance	4,793.93

\$85,580.00

Appropriation for the traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, Chapter 174, Acts of 1933

Brought forward from 1932 appropriation

{ \$28,650.00
66.25
1.37

\$28,717.62

Total amount appropriated

Expended during the year for traveling expenses of agents

Unexpended balance	\$28,296.61 421.01
--------------------------	-----------------------

\$28,717.62

Appropriation for reimbursement of owners of horses killed during the present and previous years; travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, Chapter 174, Acts of 1933

Brought forward from 1932 appropriation

\$6,500.00
13.95

\$6,513.95

Total amount appropriated

Expended during the year for the following purposes:

Supplies for veterinary inspectors	\$272.61
Laundry	461.43
Antiseptics, biologics and disinfectants	332.58
Thermometers, needles, syringes, etc.	388.80
Ear-tags, punches, chains, etc.	1,604.10

Expenses of killing and burial	99.50
Expenses of travel allowed inspectors of animals.....	608.45
Quarantine expenses	1,057.00
 Total expenditure	 <u>\$4,824.47</u>
Unexpended balance	1,689.48
	 <u>\$6,513.95</u>
Appropriation for reimbursement of owners of tubercular cattle killed, as authorized by section twelve A of chapter 129 of the General Laws, inserted by section 1 of chapter 304 of the Acts of 1924, and in accordance with certain provisions of law and agreements made under authority of section 33 of chapter 129 of the General Laws, as amended during the present and previous year, Chapter 174, Acts of 1933.....	
Brought forward from 1932 appropriation	
 Total amount appropriated	 <u>\$500,000.00</u>
Expended during the year for the following:	
17,633 head of cattle killed (chapter 129, General Laws as amended)	\$472,045.29
90 head of cattle killed (physical cases including no lesion cases)	1,942.00
 Total expenditure	 <u>\$473,987.29</u>
Unexpended balance	77,488.76
	 <u>\$551,476.05</u>
Reimbursement of towns for inspectors of animals: Appropriation for the reimbursement of certain towns for compensation paid to inspectors of animals, chapter 174, Acts of 1933.....	
Transferred from Small Items	
 Total amount appropriated	 <u>{ \$5,500.00</u>
Expended during the year for reimbursement of certain towns	42.50
Unexpended balance	28.57
	 <u>\$5,571.07</u>
 \$5,468.89	
102.18	
	 <u>\$5,571.07</u>

The average amount paid for cattle slaughtered under the provisions of Chapter 129, General Laws, as amended, was \$46.86 for registered purebred cattle and \$25.70 for grade cattle.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$3.00; and for Hemorrhagic Septicemia treatments at Brighton \$580.75.

Respectfully submitted,
EVAN F. RICHARDSON,
Director.

The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DIRECTOR OF ANIMAL INDUSTRY

FOR THE

Year ending November 30, 1934

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The Commonwealth of Massachusetts

DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY

To the Commissioner of Conservation:

The report of the work of this Division for the year ending November 30, 1934, is herewith submitted:

On January 28th Evan F. Richardson, Director of the Division since June 1, 1928, was succeeded by Edgar L. Gillett of Westfield.

On May 3rd Dr. M. L. Miner of Greenfield was retired, as required by Chapter 32 of the General Laws, Tercentenary Edition. His connection with the work of animal disease control dated from 1895. In 1911 he was appointed as Veterinary Health Officer and assigned to the Franklin County district. Credit to a great extent is due him for the fact that Franklin County was the second in the Commonwealth to be declared a modified accredited area, and also for his unswerving interest and vigilance in all matters pertaining to his district and to the duties of his office.

BOVINE TUBERCULOSIS

It has been a year of unusual activity particularly in connection with the work pertaining to the tuberculin testing for the eradication of bovine tuberculosis.

On November 30, 1933, there were remaining 125 towns and cities from which petitions for an area test, as provided by Chapter 123, Acts of 1930, had not been received, or where area work was not completed. In three of these towns there are no cattle kept.

On March 14, 1934, the area test law referred to (Chapter 123, Acts of 1930) was amended by Chapter 96, Acts of 1934, as follows:

CHAPTER 96. — AN ACT PROVIDING FOR THE ULTIMATE ELIMINATION OF DISEASED CATTLE FROM THE COMMONWEALTH

Chapter one hundred and twenty-nine of the General Laws is hereby amended by striking out section thirty-three B, as appearing in the Tercentenary Edition thereof, and inserting in place thereof the following: — *Section 33B.* The director may, upon application to him by not less than seventy-five percent of the cattle owners owning cattle permanently kept in any city or town, or upon like application by the owners of eighty-five per cent of such cattle, declare said city or town a quarantine area and may proceed to test by the tuberculin test or otherwise all bovine animals within said area. Whenever not less than eighty-five percent of the cattle permanently kept in the commonwealth are being tested for bovine tuberculosis under the supervision of the director or of the appropriate federal officials, the director may declare the entire commonwealth to be a quarantine area and may proceed to test by the tuberculin test or otherwise all bovine animals within the commonwealth. If the director finds and declares that such a city or town or the commonwealth, as the case may be, is substantially free from bovine tuberculosis, he may proclaim it to constitute a modified accredited area and may prescribe rules and regulations, subject to the approval of the governor and council, prohibiting the shipment or transportation into the same of any bovine animals without a permit and health certificate issued by the director or some officer designated by the director for the purpose. Whoever violates the terms and conditions of any such quarantine or any such rule or regulation shall be punished by a fine of not more than five hundred dollars or by imprisonment for not more than one year, or both. (Approved March 14, 1934.)

On July 2 more than 85% of the cattle permanently kept in the Commonwealth were tuberculin tested under State supervision and the Commonwealth was declared under quarantine. Additional veterinarians were assigned for testing and on November 30th testing, with a few scattered exceptions, had been completed on all premises where one or more head of cattle are maintained.

TUBERCULIN TESTS BY COUNTIES — 1934

	FIRST TEST			SECOND TEST			THIRD OR MORE			ACCREDITED			TOTAL TESTS		
	Herd	Test	Reactors	Herd	Test	Reactors	Herd	Test	Reactors	Herd	Test	Reactors	Herd	Test	Reactors
Barnstable	41	75	3	59	110	4	299	1,265	25	239	900	6	638	2,440	38
Berkshire	150	404	6	450	2,466	28	1,370	14,910	213	984	15,640	80	2,954	33,419	327
Bristol	1,509	7,359	3,407	584	3,257	193	1,343	216	295	4,485	3,285	30	3,673	28,444	3,846
Dukes	79	264	7	13	35	1	38	352	3	31	285	1	161	936	12
Essex	623	3,068	1,479	512	2,512	106	837	7,930	237	435	5,879	51	2,407	19,389	1,873
Franklin	75	198	1	512	2,260	0	868	4,808	11	1,287	15,976	13	2,307	21,242	25
Hampshire	999	4,464	1,563	492	2,303	91	785	7,741	196	461	5,555	18	2,737	20,069	1,868
Middlesex	774	3,356	1,798	583	1,357	95	1,083	10,360	146	720	9,504	24	3,160	27,377	2,003
Nantucket	814	3,444	1,375	700	2,921	147	1,668	16,621	239	512	7,091	53	3,694	30,077	1,814
Norfolk	33	240	87	1	7	0	6	81	0	12	279	20	52	616	166
Plymouth	380	1,457	468	236	1,026	38	607	5,827	109	277	3,379	15	1,499	11,689	650
Suffolk	839	2,572	639	358	1,231	27	900	7,590	173	325	3,442	24	2,422	14,835	863
Worcester	11	110	56	0	0	0	0	1,286	16	5	956	0	16	56	2,035
Total	1,301	5,301	1,483	1,082	4,849	139	3,155	31,714	318	1,286	19,981	95	6,834	61,854	
	7,628	33,330	12,372	5,156	24,130	869	12,901	122,542	1,886	6,869	92,551	430	32,554	272,553	15,557

TUBERCULIN TESTS BY MONTHS — YEAR 1934

	First Test			Second Test			Third or More			Accredited			Total Tests			
	Herd	Head	Reactors	Herd	Head	Reactors	Herd	Head	Reactors	Herd	Head	Reactors	Herd	Head	Reactors	
1933	461	2,426	773	433	2,190	72	892	9,361	146	508	7,342	33	2,294	21,319	1,024	
Dec.	537	2,310	722	416	2,315	79	1,187	11,648	175	696	7,331	31	2,836	33,604	1,007	
January	325	1,389	522	339	1,357	58	848	7,778	107	435	5,430	36	1,947	16,174	723	
February	594	3,040	1,311	460	2,416	86	1,061	11,848	567	7,500	24,804	26	2,681	24,804	1,632	
March	555	2,467	1,040	451	2,147	63	1,213	13,299	298	874	14,666	36	3,093	32,977	1,437	
April	697	2,799	886	434	2,472	141	1,233	13,672	168	500	7,752	45	2,864	26,695	1,245	
May	543	2,753	1,298	442	1,484	36	1,210	10,284	108	573	6,055	33	2,968	20,576	1,475	
June	579	2,358	747	508	2,448	63	945	8,601	95	394	4,797	8	2,426	18,204	913	
July	502	1,686	574	284	1,396	43	1,030	8,555	174	473	5,965	10	2,289	17,602	801	
August	778	3,886	1,635	333	1,470	57	879	7,503	113	386	4,789	27	2,376	17,648	1,832	
September	1,191	5,422	2,252	511	1,691	67	1,111	9,781	171	657	8,079	56	3,470	24,975	2,546	
October	866	2,792	612	545	2,524	104	1,093	10,212	122	806	12,845	89	3,310	28,373	927	
Total	7,628	33,330	12,372	5,156	24,130	869	12,901	122,542	1,886	6,869	92,551	430	32,554	272,553	15,557	
			37.1%			3.6%			1.5%			.46%			5.7%	

Pure breeds: 31,264 — 575 reacted.

Grades: 241,289 — 14,982 reacted.

Note: The decrease in the percentage of reactors to the second test (first retest), 3.6%, from the per cent revealed in the first test, 37.1%, as shown in the table above, is most gratifying and is without doubt due not only to increased efficiency in the application and interpretation of the test but also to more efficient supervision of the cleaning and disinfection of infected premises.

In the interest of all concerned it was deemed advisable to make a concentrated drive to complete tuberculin testing of all herds in the Commonwealth during the 1934 fiscal year. It was evident, however, that there was not a sufficient sum of money appropriated for services and travel expenses of veterinarians and agents. The United States Bureau of Animal Industry through Dr. E. A. Crossman, Federal Inspector in Charge in Massachusetts, came to the assistance of the Division with the offer of the services of additional Federal veterinarians, thus making it possible to complete the area test by November 30th. If it had not been for the assistance of the United States Bureau of Animal Industry and the wholehearted support and personal interest of Dr. Crossman it would have been impossible to have completed the work on the date set.

The preceding, page 3, tables are a record of the work accomplished in the tuberculin testing of cattle.

COUNTY STATISTICS — 1934

	UNDER TEST		ACCREDITED		CLEAN		REACTORS LAST TEST		
	Herds	Head	Herds	Head	Herds	Head	Herds	Head	Reactors
Barnstable . . .	628	2,241	251	1,237	377	1,004	—	—	—
Berkshire . . .	2,324	26,666	1,297	19,981	976	5,386	51	1,299	74
Bristol . . .	2,742	19,470	533	7,327	1,770	7,743	439	4,400	2,620
Dukes . . .	156	820	35	286	121	534	—	—	—
Essex . . .	1,722	13,153	620	7,469	1,032	4,521	70	1,163	288
Franklin . . .	2,204	21,061	1,526	18,886	676	2,149	2	26	3
Hampden . . .	2,083	14,594	679	7,768	1,214	5,444	190	1,382	694
Hampshire . . .	2,287	19,626	942	12,215	1,251	6,130	94	1,281	652
Middlesex . . .	2,634	21,336	886	11,608	1,595	8,021	153	1,707	707
Nantucket . . .	43	453	6	76	22	61	15	316	107
Norfolk . . .	1,156	8,877	381	4,680	694	3,484	81	713	291
Plymouth . . .	1,883	10,564	464	4,979	1,282	4,448	137	1,137	509
Suffolk . . .	16	166	5	54	5	9	6	103	56
Worcester . . .	5,343	49,084	2,287	32,406	2,820	14,358	236	2,320	825
Total . . .	25,221	208,111	9,912	128,972	13,835	63,292	1,474	15,847	6,826

Note: The above table gives for the first time accurate information as to the cattle population of the State and also the number of infected herds and cattle in each county at time of last entire county test.

Tuberculin testing for the eradication of bovine tuberculosis is conducted cooperatively with the United States Department of Agriculture, Bureau of Animal Industry, the actual work of testing being conducted by veterinarians employed or authorized by the Commonwealth and by veterinarians in the employ of the Federal Government. The work this year was done by:

	Herds	Head	Reactors
State veterinarians (salary) . . .	5,918	52,680	2,419
State veterinarians (per diem) . . .	17,266	160,929	2,488
State veterinarians (paid by owner) . . .	91	1,929	23
Federal veterinarians . . .	9,279	57,015	10,627
	32,554	272,553	15,557

The law, Chapter 129, General Laws, Tercentenary Edition, under the provisions of which tuberculin testing has been conducted, was amended in June by Chapter 272, Acts of 1934, as follows:

CHAPTER 272. — AN ACT RELATIVE TO THE PAYMENT OF COMPENSATION FOR THE SLAUGHTERING OF ANIMALS REACTING TO THE TUBERCULIN TEST

Section thirty-three of chapter one hundred and twenty-nine of the General Laws, as appearing in the Tercentenary Edition, is hereby amended by inserting after the word "segregation" in the tenth line the word: —, sale, — and by inserting after the word "animal" the second time it occurs in the thirty-first line the following: —; and provided, further, that no payment shall be made for any animal if, since the previous test, the owner or his representative has violated the rules and

regulations made hereunder; and provided, further, that the owner or his representative has not unlawfully or improperly obtained or attempted to obtain reimbursement for any animal,— so as to read as follows:—

Section 33.— Except as otherwise provided, a person who has animals tested with tuberculin shall not be entitled to compensation from the commonwealth for any animals which react to the tuberculin test unless they have been tested by the director or qualified veterinarians acting under his authorization and have been owned and kept by the owner applying for the test on the premises where tested for a period of not less than sixty days next prior to the date of said test or have been admitted to the herd on a test approved by the director. The director may prescribe rules and regulations for the inspection of cattle by the application of the tuberculin test and for the segregation, sale or slaughter of reacting animals; but no inspection by the application of such test shall be made unless an agreement has previously been entered into for such inspection and application with the owner of the animals, except as provided in section thirty-three B. If, in the opinion of the director, any of the animals react to the test and are slaughtered in consequence thereof, the owner shall be reimbursed by the commonwealth in the manner hereinafter provided. The director may appoint persons to make appraisals of reacting cattle in conjunction with the owner or his authorized representative. Such appraisal shall be subject to the rights of arbitration and petition set forth in section thirty-one; provided, that the award or damages shall be within the limits prescribed by this section. The commonwealth shall, within thirty days after the filing in the office of the director of a valid claim for reimbursement in pursuance of such an appraisal or of an award under section thirty-one, pay to the owner of any animal slaughtered under authority of any rules or regulations made hereunder, or to any mortgagee or assignee designated in writing by said owner, one half of the difference between the amount received by the owner for the carcass of the animal and the value of the animal as determined by appraisal as aforesaid; provided, that payment by the commonwealth hereunder shall not exceed fifty dollars for any grade animal or seventy-five dollars for any pure-bred animal; and provided, further, that no payment shall be made for any animal if, since the previous test, the owner or his representative has violated the rules and regulations made hereunder; and provided, further, that the owner or his representative has not unlawfully or improperly obtained or attempted to obtain reimbursement for any animal; and provided, further, that the owner or his representative has not, in the opinion of the director, by wilful act or neglect, contributed to the spread of bovine tuberculosis. (Approved June 7, 1934.)

By this change the State is given authority to supervise to some extent the salvaging of reactor cattle. The law also defines more clearly the conditions under which reimbursement may or may not be approved.

Changing conditions in connection with the conduct of the work made it imperative that the rules and regulations in force since August, 1922, be changed to comply with present-day requirements and accordingly the following rules and regulations were submitted to the Governor and Council and were approved October 10, 1934.

RULES AND REGULATIONS APPLYING TO THE TUBERCULIN TESTING OF CATTLE

Under the Provisions of Section 33, Chapter 129, General Laws and Amendments Thereto

1. An owner of cattle desiring assistance from the Commonwealth of Massachusetts in the eradication of bovine tuberculosis if found in his cattle and in the maintenance of his herd free from said disease may request the Director of Animal Industry to have a tuberculin test applied in accordance with Section 33, Chapter 129 of the General Laws, T. E., and amendments thereto. Such request shall be made on forms prescribed by said Director and shall be signed by the owner or his legally authorized representative.

2. Said owner or his said representative shall agree to comply with these rules and regulations and such additional rules and regulations as the said Director from time to time may prescribe.

3. Before the tuberculin test is applied the owner or his said representative shall give complete information as to all cattle owned by him; location of premises where kept; where, when, from whom and the price at which said herd or individual members thereof were purchased; the name and address of any person holding a claim on said herd or individual members thereof and the amount and nature of such claim; and shall state whether he has ever owned (or had an interest in) any cattle tested under State supervision and if so, when and where located.

4. Said owner or his said representative shall submit his entire herd on any one premises for inspection and a tuberculin test at such times and by such methods as may be considered necessary by said Director.

5. The identity of every animal to which a tuberculin test is applied shall be established by the insertion in its external right ear of a metal tag provided by said Director, or by a certificate of its registration as a pure bred animal, or by any other method deemed practicable by said Director.

6. The owner shall keep a record by registration name or tag number, or by any other method deemed practicable by said Director, of all cattle in his herd.

7. (a) Any animal which reacts to the test shall be identified by the insertion of a reactor tag in its external left ear and by the letter T branded on its left jaw and such animal shall not be disposed of in any way or leave the premises where tested except for immediate slaughter, or for segregation in accordance with a special agreement made by the owner or his said representative with said Director.

(b) Said animal shall be appraised at a fair and just estimate of its market value, and if to be slaughtered said owner or his said representative shall make all arrangements therefor, shall pay all expenses incurred thereby and shall before the animal is slaughtered give due notice to said Director as to time and place of slaughter. Except by special written agreement said animal must when leaving the premises where tested go direct to said place of slaughter. If compensation is to be claimed said slaughter shall take place within 30 days of date of appraisal, except that in extraordinary and meritorious cases and at the discretion of the Director, such limit of 30 days may be waived.

(c) The owner or his said representative shall obtain not less than three signed bids from responsible parties and these bids must be submitted to the Director for his approval prior to the sale of reacting cattle. The owner, his said representative, or the Director may reject any or all bids. The Director may waive in writing any part or all of this requirement if in his opinion it is deemed advisable.

(d) If segregated, its dairy products shall be completely pasteurized before being used for any purpose whatever.*

8. An owner of cattle slaughtered under the provisions of said Section 33 shall make affidavit on forms prescribed by the Director as to the amount of money received from the sale or disposal of the reacting animals and such other information as the Director may consider necessary.

9. Thorough cleansing and disinfection of premises, and any repairs found necessary shall be made immediately after removal of reactors and shall be made by the owner who shall provide and pay for all materials used and the labor employed. Said cleansing, disinfection and repairs necessary therefor shall be done in accordance with the requirements of said Director or his representative and may be officially supervised if deemed necessary.

10. An owner who has availed himself of a tuberculin test under the provisions of these rules and regulations shall purchase or obtain only such bovine animals except for immediate slaughter as have the approval of the Director, namely, animals direct from a herd declared as a tuberculosis free herd, and shall at time of purchase or of obtaining same give notice to the Director as to identification of said animal or animals.

*Extract from Chapter 94, Section 19, ". . . no person . . . shall sell . . . milk produced . . . from sick or diseased cows." A cow declared to be a reactor is regarded as a diseased animal.

11. An owner claiming indemnity is entitled to payment for reactors to one first or original test only and for reactors to any subsequent test or retest provided all such reactors are identified as in herd at time of previous test, as born into the herd since time of previous test, or as admitted to the herd or obtained in accordance with section 10 of these rules and regulations.

12. These rules and regulations shall supersede the rules and regulations approved in Council July 12, 1922, and August 18, 1926.

E. L. GILLETT,
Director of Animal Industry.

Approved:

SAMUEL A. YORK,
Commissioner.

Approved in Council (October 10, 1934):

Approved as to form:

CHARLES F. LOVEJOY,
Assistant Attorney-General.

WILLIAM L. REED,
Executive Secretary.

Under Section seven, paragraph (c), if three or more head of cattle react it is now required that at least three written bids be obtained. This requirement has already resulted in higher salvage to the owner and a corresponding saving to the Commonwealth.

On April 25th Berkshire County was declared a modified accredited area by the Federal Department, — *i.e.*, an area in which less than one-half of one per cent of reaction resulted from a tuberculin test of all bovine animals in the County. On August 1st Dukes County was also declared a modified accredited area. There are now four counties in the State rated as modified accredited areas: —

Barnstable County in June, 1929. Berkshire County in April, 1934.
Franklin County in December, 1932. Dukes County in October, 1934.

Thorough cleansing and proper disinfection of premises from which reactor animals have been removed is quite as important as the removal of the reactors themselves. As a means of obtaining more efficient results veterinarians are now required not only to instruct owners as to what should be done but to also inform them as to the quantity of crude disinfectant which must be used to make solution enough to properly saturate the area used for housing the entire herd, as it is required that regardless of the number of reactors, one or more, the whole area must be gone over. Inspectors of animals are informed as to how many cattle were included in the test, the number of reactors, and the amount of disinfectant recommended. An addressed postal card form is left with the owner on which to indicate the date the last reactor left the premises and the date disinfection was completed. Upon receipt of this card from the owner an additional notice is sent to the Inspector of Animals.

The average appraisal of reactors this year was \$66.53; the average salvage was \$14.45.

Tuberculin testing under the accredited herd plan was started by the United States Bureau of Animal Industry in cooperation with the livestock authorities of the different States in the year 1917. It was not however until August, 1922, that the Commonwealth of Massachusetts entered into the work. The percentage of infection in the State was found very high, varying from 9.35% to 52.77% in the several counties.

The work of completing the first test on all premises where cattle are kept having now been accomplished the following additional tabulations should be of value:

RECAPITULATION — TUBERCULIN TESTS BY YEARS

YEAR	FIRST TEST			SECOND TEST			THIRD OR MORE			ACCREDITED			TOTAL		
	Herds	Head	Reactors	Herds	Head	Reactors	Herds	Head	Reactors	Herds	Head	Reactors	Herds	Head	Reactors
1922	101	2,265	632	11	219	36	7	330	5	8	205	0	127	3,019	6773
1923	426	8,128	2,543	229	4,668	331	155	7,186	320	64	2,386	12	874	22,368	32,066
1924	650	11,418	4,600	325	4,689	516	297	10,232	495	101	3,835	14	1,383	30,174	5,625
1925	13,762	6,284	505	6,765	887	530	14,919	1,024	176	5,812	69	2,093	41,288	8,264	
1926	6,814	3,658	468	5,693	735	636	17,862	1,779	284	7,306	125	1,878	37,675	6,337	
1927	8,815	2,289	521	5,185	403	1,116	25,593	1,600	441	10,836	77	3,011	50,429	4,389	
1928	825	5,447	1,265	702	6,812	332	1,366	29,491	1,624	599	12,901	178	3,492	54,651	3,399
1929	2,145	21,436	6,712	1,296	11,922	542	1,791	40,566	1,604	1,046	18,848	173	6,278	92,772	9,031
1930	2,888	28,720	10,970	1,988	18,805	916	2,797	50,225	1,412	1,355	24,072	179	9,031	121,822	13,457
1931	2,977	27,653	11,273	2,849	24,121	1,714	3,006	51,120	1,273	2,273	32,739	342	12,913	165,653	15,662
1932	5,669	34,765	10,086	5,038	33,582	7423	107,370	53,360	3,580	53,321	351	21,719	237,718	22,364	
1933	5,112	34,745	14,656	4,558	26,690	905	12,278	133,464	2,139	5,091	70,321	404	27,039	265,260	18,104
1934	7,628	33,330	12,372	5,156	24,130	869	12,901	122,542	1,886	6,869	92,551	430	32,554	272,553	15,557
Total	30,726	245,913	95,320	23,656	173,281	10,013	46,303	60,900	18,521	21,707	335,298	2,354	122,392	1,395,362	126,208

**RECAPITULATION
FINANCIAL REPORT**

Year	Appropriation	Reactors		Physical Cases Payment	Balance to Next Year	AVERAGE PAYMENT		Salvage
		Head	Payment			P. B	Grade	
1922	\$25,000.00	400	\$12,889.32	—	\$12,110.68	—	—	—
1923	100,000.00	2,283	67,835.22	44,275.46	—	—	—	—
1924	115,117.75	6,730	158,383.21	\$1,010.00	None	—	—	—
1925	200,000.00	6,282	168,168.45	18,748.20	13,033.35	—	—	\$29.00
1926	200,000.00	5,807	157,757.96	10,737.57	44,597.82	\$47.46	\$23.57	—
1927	165,000.00	5,107	135,116.96	7,838.43	66,632.43	46,13	22.92	34.96
1928	100,000.00	3,674	99,439.45	4,759.54	62,453.44	43,84	23.47	45.17
1929	252,500.00	6,319	310,475.50	4,453.63	70,51	45.80	43.08	—
1930	600,000.00	12,271	505,997.56	4,015.00	12,15	72.29	46.34	32.53
1931	800,000.00	15,886	687,004.98	6,125.00	106,882.17	62,73	41.90	19.23
1932	742,000.00	23,156	793,244.32	4,161.80	55,443	33.21	13.88	—
1933	500,000.00	17,633	472,045.29	1,942.00	77,498.76	46,86	25.70	13.46
1934	350,000.00	14,962	389,940.71	565.00	56,983.05	48,21	23.90	14.45
	\$4,149,617.75	120,510	\$4,028,298.53		\$64,356.17			

In addition to the \$4,028,298.53 expended by the Commonwealth as reimbursements to cattle owners, said owners received reimbursements amounting to \$2,720,-686.93 from the United States Government, making a grand total of \$6,748,985.46.

The award allowed an owner is figured by subtracting the amount received by the owner from the sale for immediate slaughter of each reactor animal from the agreed estimated market value of said animal, such payment limited to amounts which have varied as follows:

STATE:

August 1, 1922, to December 1, 1928: — $\frac{1}{3}$ of the difference, not to exceed \$25 for a grade or \$50 for a pure bred animal.

December 1, 1928, to date: — $\frac{1}{2}$ of the difference, not to exceed \$50 for a grade or \$75 for a pure bred animal.

FEDERAL:

July, 1917, to February, 1929: — $\frac{1}{3}$ of the difference, not to exceed \$25 for a grade or \$50 for a pure bred animal.

February, 1929, to July, 1931: — $\frac{1}{3}$ of the difference, not to exceed \$35 for a grade or \$70 for a pure bred animal.

July, 1931, to July, 1932: — $\frac{1}{3}$ of the difference, not to exceed \$25 for a grade or \$50 for a pure bred animal.

July, 1932, to date: — $\frac{1}{3}$ of the difference, not to exceed \$20 for a grade or \$50 for a pure bred animal.

The following table indicates accurately the extent of infection in each county prior to and at time of the first test conducted under State supervision, also the percentage on November 30, 1934:

	TUBERCULIN TESTS APPLIED			Per cent Reactors	Per cent Infection Nov. 30, 1934
	Herds	Head	Reactors		
Barnstable . .	1,124	3,227	302	9.35	0.
Berkshire . .	2,935	28,543	6,137	21.50	.27
Bristol . .	2,969	20,377	10,599	52.01	13.45
Dukes . .	193	953	123	12.90	0.
Essex . .	2,073	16,550	7,909	47.78	8.84
Franklin . .	2,659	22,243	3,574	16.06	.12
Hampden . .	2,426	18,639	7,260	38.95	4.75
Hampshire . .	2,635	22,095	7,623	34.50	3.32
Middlesex . .	3,348	28,271	14,920	52.77	3.31
Nantucket . .	50	506	137	27.07	23.62
Norfolk . .	1,585	10,515	4,434	42.16	3.27
Plymouth . .	2,312	11,969	3,472	29.01	4.81
Suffolk . .	37	382	174	45.55	33.73
Worcester . .	6,380	61,643	28,706	46.56	1.68
	30,726	245,913	95,320	38.7	3.28

CATTLE REPORTED AS SHOWING PHYSICAL SYMPTOMS OF DISEASE

The work in connection with this classification is authorized under Chapter 129, Section 28 (requiring report of the existence of contagious disease in domestic animals), Section 11 (examination and condemnation of animals found to be affected with tuberculosis), and Section 12-A (payment for cattle condemned).

During the year there have been reported in herds where tuberculin testing had not been conducted, forty-four head of cattle included in this classification. Of this number twenty-six were found to be affected with tuberculosis, five died prior to being examined, and thirteen were released as physical examination did not indicate tuberculosis.

QUARANTINE STATION — BRIGHTON

All cattle intended for dairy purposes consigned to this station must be accompanied by a certificate indicating that they are from tuberculosis-free supervised herds. Cattle on which satisfactory certificates are not available are held for retest.

Purchasers of cattle at the sales barn are furnished certificates (upon request) showing status of the animal or animals purchased.

There were 11,870 dairy cattle received at the market this year. Of this number 90 were held for retest. Of the above number 1,956 were from points in Massachusetts, of which 3 were held for retest. Of these (9,758 interstate, and 1,786 State) 11,544 were acceptable as additions to accredited herds. Three hundred twenty-six (326), (217 interstate and 109 State) were acceptable only as additions to herds not accredited.

DISPOSITION

	<i>Interstate</i>	<i>State</i>	<i>Total</i>
To Massachusetts . . .	8,388	1,891	10,279
Connecticut . . .	79	1	80
Rhode Island . . .	1,415	62	1,477
Maine . . .	11	—	11
New Hampshire . . .	18	2	20
Vermont . . .	3	—	3
	9,914	1,956	11,870

Four thousand sixty-eight (4,068) Massachusetts reactors were received at the reactor yard of the Quarantine Station — 4,066 arriving by truck and two (2) by train. These reactors were, as in the past, identified and released on special permit for immediate slaughter at establishments under Federal inspection or on the premises of the Brighton Abattoir.

All trucks and cars conveying reactors have been cleansed and disinfected. One thousand three hundred ninety (1,390) trucks taking dairy cattle from the market were disinfected before loading.

As required in previous years, the sales barn has been cleaned and disinfected at frequent intervals during the year.

Preventive hemorrhagic septicemia or shipping fever inoculations were given at owners' request to 4,139 head of cattle. This service is furnished owners practically at cost.

Total receipts of livestock at the station during the year were as follows: 41,170 cattle; 70,585 calves; 8,138 sheep and lambs; and 22,603 swine.

INTERSTATE MOVEMENT OF CATTLE INTO MASSACHUSETTS

All cattle transported into Massachusetts, unless consigned direct to the quarantine stations at Brighton and Somerville or to a Federal inspected slaughter house, must, by Massachusetts law, Department Order No. 43, be accompanied by a certificate of health in the form of an approved record of tuberculin test and by a permit issued by the Director of the Massachusetts Division of Animal Industry. Four thousand two hundred fifty-four (4,254) permits were issued, of which 162 were for cattle intended for exhibition purposes. This year there were received: at Brighton, 9,914; at other points, on permit, 23,371; total, 33,285.

Origin of interstate cattle received at Brighton was as follows:

	<i>Released on Papers</i>	<i>Tested</i>	<i>Total</i>
Connecticut	23	—	23
Maine	5,868	19	5,887
New Hampshire	2,282	31	2,313
New York	113	3	116
Ohio	11	—	11
Rhode Island	13	—	13
Vermont	1,517	34	1,551
	9,827	87	9,914

At other points:

California	1	New Hampshire	4,749
Canada	1,344	New Jersey	34
Connecticut	1,555	New York	388
Illinois	3	Ohio	2,779
Indiana	244	Pennsylvania	1,017
Iowa	54	Rhode Island	578
Maine	1,587	Vermont	6,339
Michigan	313	Virginia	5
Minnesota	508	Washington	3
Missouri	43	Wisconsin	1,827
Total			23,371

Three hundred seventy-three (373) of the 33,285 were tested after arrival, — eighty-seven (87) at Brighton, and 287 at other points.

In addition to the above there were received on permits 1,951 beef cattle and 711 cattle for exhibition purposes.

During the year 1,739 interstate tuberculin test certificates on 3,278 head of dairy cattle intended for interstate shipment from Massachusetts were issued.

DROUGHT RELIEF CATTLE

Unprecedented drought conditions throughout the Middle Western States during the summer months resulted in the death of many thousands of cattle through lack of food and water. As a relief measure the Federal Emergency Relief Administration under the National Recovery Act purchased large numbers of cattle in these areas for shipment to parts where they could be salvaged for food purposes by immediate slaughter, or to districts where they could be turned out to pasture to be brought back into condition suitable for slaughter.

During the period between August 24 and November 9, 8,848 head were shipped into Massachusetts consigned to slaughtering establishments at Somerville and Brighton.

In addition to that number there arrived 1,888 head for distribution for pasture purposes. These were unloaded under the supervision of representatives of this Division at the Quarantine Station of the United States Department of Agriculture located at Littleton, where they were watered, fed, and subjected to a tuberculin test. This test (intradermic method) was applied by Massachusetts veterinarians temporarily employed by the E. R. A. Of the total number tested, 49 reacted and were tagged, branded, and consigned to Brighton for slaughter. Lesions of tuberculosis were found on post mortem examination in 28 of the 49 reactors, and in addition to the reactors, 28 head were rejected as unsuitable for pasture purposes and were slaughtered.

All of these pasture cattle, in addition to a prominent government brand on the hip, were tagged with Massachusetts passed tags and were distributed as follows:

Counties	Premises	Head
Barnstable	1	150
Essex	9	709
Middlesex	2	50
Norfolk	2	101
Worcester	12	801
Total	26	1,811

By November 15 these cattle, with the exception of 30 head that had either died or been killed on account of accident, etc., were brought in from pasture and slaughtered.

During the period these cattle were in pasture they were subjected to frequent inspection by veterinarians in the employ of this Division, who submitted regular written reports as to the general condition not only of the cattle but of the pastures.

In addition to the pasture cattle there was received a shipment of 53 head of cattle for dairy purposes. These cattle arrived at Westport where they were immediately placed under quarantine by order of this Division. These cattle were subjected to a tuberculin test and passed. Twenty-seven (27) head were subsequently released for distribution in that section as dairy cattle; 2 of the animals died at pasture; and the remainder were eventually shipped to Brighton and slaughtered.

BANG ABORTION DISEASE

Interest in the blood testing of cattle for the detection of Bang Bacillus Disease (contagious abortion) has increased during the past year due largely to the announcement of the Federal Government plan for the elimination of reactors to the agglutination or blood test under the provisions of the so-called Jones-Connally Bill.

Under this bill \$50,000,000 were appropriated to be allotted to the several states for cattle disease control work. One project under this bill is the blood testing of cattle for owners whose herds are tuberculin tested under State and Federal supervision and who make request for such test. Cattle that react are ear-tagged and also branded on the hip with the letter B. The owner arranges for the sale and slaughter of the reactors, the amount realized from the sale is retained by him, and, in addition, he is paid compensation to an amount not exceeding \$20 on a grade animal and \$50 on a pure bred animal. The obtaining of blood samples is arranged by the Federal Department without cost to the owner. He is obliged, however, to agree to comply with the rules and regulations of the State in which he is located which pertain to the establishment of Bang Bacillus Free Accredited Herds and, at the expiration of the Federal plan, to continue the blood testing of his herd under State supervision.

Cooperation by this Division is given by the use of the laboratory of the State Department of Public Health in examining all blood samples, and through the services of veterinarians of this Division at the time of slaughter of reactors.

Under this agreement tests have been conducted by the Federal Department in eighteen herds in which 857 cattle were tested with 168 reactors. All reactors were reported as slaughtered.

An increasing demand for negative blood tested cattle for interstate shipment is also a factor in connection with this disease. The tendency on the part of an ever increasing number of livestock officials is toward requiring that all cattle moved interstate shall have passed a negative blood test.

On July 1st, as a result of a meeting of the New England Live Stock officials, uniform regulations were adopted and put into effect forbidding the shipment into the New England States of blood reactors or cattle that had aborted. In accordance with this agreement the following order was issued:

Order No. 44.

(BANG ABORTION DISEASE)

DEPARTMENT OF CONSERVATION

DIVISION OF ANIMAL INDUSTRY

20 Somerset St., Boston, June 12, 1934.

To Transportation Companies, Inspectors of Animals, and all Persons whom it may Concern:

Division Order No. 42 is hereby revoked and the following Order submitted therefor:

Whereas the disease known as Bang Abortion Disease (Contagious Abortion), which is a contagious disease and is so recognized under the laws of this Commonwealth, prevails extensively among cattle and

Whereas it is deemed necessary, for the protection of the live stock interests of the Commonwealth, to restrict shipments into this Commonwealth of cattle assumed to be affected with this disease.

Now therefore, acting under and by virtue of the authority vested in me by the provisions of Chapter 129 of the General Laws (Tercentenary Edition) and all Acts and Amendments thereof and in addition thereto, and all other authority me hereto enabling, I do hereby make the following order and regulation:—

Sec. 1. On all bovine animals driven, shipped, or in any way transported to the Commonwealth of Massachusetts from points outside thereof, if intended for dairy or breeding purposes, a statement, signed under the penalty of perjury by both the owner of said animals or his authorized representative and by the shipper, that to the best of their knowledge said animals are not affected with any infectious disease, have not aborted within the twelve month period next prior to date of shipment, and have not reacted to a field or laboratory test for Bang Abortion Disease (Contagious Abortion) must, except as provided in Section 2 of this order, accompany the certificate of tuberculin test as required by Department order No. 43 or must be forwarded direct to the office of the Director of Animal Industry of the Massachusetts Department of Conservation.

Sec. 2. A bovine animal which has recently aborted or which has given a positive or suspicious reaction to a field or laboratory test for Bang Abortion Disease (Contagious Abortion) shall not be moved into the Commonwealth of Massachusetts except upon and accompanied by a special permit issued by the Director of Animal Industry.

Sec. 3. Any animal brought in on a permit as referred to in Section 2 of this order, if intended for dairy or breeding purposes, is hereby declared to be in quarantine and must be held in isolation at the risk and expense of the person, firm or corporation owning same until released by order of the Director; or if intended for slaughter must be delivered direct to place of slaughter designated on the permit.

Sec. 4. An animal as referred to in Section 3 of this order, after passing two approved negative blood tests for Bang Abortion Disease made after arrival and at least three months apart, may be released by the Director.

This order shall be published by the Inspector of Animals in each city and town in the Commonwealth by filing a copy hereof with the City Clerk or Town Clerk as the case may be and by posting a copy hereof in a conspicuous public place within the city or town for which he is the Inspector of Animals.

E. L. GILLETT,
Director of Animal Industry.

Approved:

SAMUEL A. YORK, Commissioner of Conservation.

Approved in Council June 13, 1934:

WILLIAM L. REED, Executive Secretary.

During the year 14,137 samples of blood were examined. Of this number 1,024 were declared positive, or reactors to the test. Eight (8) Abortion Free Accredited Herd certificates were issued on 193 head of cattle and twenty (20) herds containing 838 head were reaccredited, making a total of twenty-eight (28) abortion free accredited herds containing 1,031 head of cattle.

RABIES

There was a decided increase in the number of animals affected with rabies reported the past year (319) over the number recorded in the year 1933 (175).

It is hard to explain the apparent lack of interest in this disease on the part of the dog owning public—a disease of vital importance from the standpoint of human health as well as that of animal health—and a disease that invariably terminates fatally.

Rabies can occur only as a result of actual contact with the saliva of an animal affected with that disease and can for that reason be eradicated only by the concerted action of each and every person possessing dogs in adopting and following one of two courses—absolute restraint (quarantine) for a period of possibly six months, or by the universal application of rabies protective treatment (immunization).

In several towns and cities in Greater Boston clinics have been held the past year for the purpose of giving protective treatment to dogs, the service being rendered free in some instances and at a nominal cost to the owner in others.

The increase in the number of persons reported as bitten is undoubtedly due to better compliance on the part of the physician with the law requiring such injuries to be reported and also to the rabies scares that are periodically given notoriety by the press.

One person — a child — is recorded as having died of rabies during the year.

The following table indicates the cases recorded for the year:

RABIES

	SHOWING SYMPTOMS			CONTACT			BITE CASES				Total	
	Positive	Negative	Questionable	Released	Killed or died*	Killed — positive	Disposal pending	Released	Killed — no examination	Killed — negative		
Forward, Year 1933	—	—	—	5	—	—	—	4	—	—	—	
December, 1933	19	—	—	23	3	—	—	206	2	13	—	
January, 1934	17	6	—	8	—	2	—	234	1	7	—	
February	24	5	—	7	—	—	—	210	1	8	—	
March	35	7	—	101	—	4	—	364	3	9	—	
April	29	4	—	33	—	1	—	464	4	12	—	
May	41	10	—	33	7	—	—	338	2	10	441	
June	21	4	5	42	3	3	—	901	8	24	—	
July	32	14	7	12	3	—	—	939	6	28	1,041	
August	23	6	3	14	37	2	—	742	3	15	845	
September	10	5	—	20	4	10	—	487	4	22	562	
October	27	6	1	24	—	—	—	437	4	8	507	
November	19	2	—	12	—	—	—	311	2	5	351	
Forward	—	—	—	—	—	22	—	—	—	8	30	
Total	297	69	16	334	67	22	22	5,637	40	161	8	6,673
The above record refers to the following animals:												
Cats	8	1	—	2	—	—	—	8	—	17	—	36
Cattle	2	3	—	41	37	5	—	—	—	—	—	88
Dogs	287	65	16	283	30	17	22	5,620	40	142	8	6,530
Squirrels	—	—	—	—	—	—	—	—	—	2	—	2
Goats	—	—	—	2	—	—	—	—	—	—	—	2
Poultry	—	—	—	6	—	—	—	—	—	—	—	6
Monkeys	—	—	—	—	—	—	—	1	—	—	—	1
Rabbits	—	—	—	—	—	—	—	8	—	—	—	8

Total positive cases, 319

*No symptoms of rabies.

One hundred fifteen (115) persons were bitten by rabid animals; 305 persons were exposed. Laboratory examination was made of the brains of 489 animals, of which 242 were positive, 235 negative, and 12 questionable.

MISCELLANEOUS DISEASES

Actinomycosis: Nineteen (19) head of cattle affected with this condition were reported.

Blackleg: Preventive treatment was applied to 1,494 head of cattle on 166 premises located in 51 towns.

Glanders: Seventeen (17) horses were reported. Laboratory tests indicated that they were not affected with glanders.

Hog Cholera and Hemorrhagic Septicemia: During the year there were 84,230 treatments applied in connection with hog cholera; and 14,408 treatments for hemorrhagic septicemia.

Mange: This condition was found in 38 head of cattle located on 6 premises.

Tuberculosis in Swine: Four (4) cases found on post mortem examination at time of slaughter were reported.

Specimens were submitted for examination and diagnosis for actinomycosis, anthrax, glanders, hemorrhagic septicemia, tuberculosis, tumors, forage poisoning, etc.

ANNUAL INSPECTION OF FARM ANIMALS AND PREMISES

The usual order for inspection of all cattle, sheep and swine and of the premises where kept was issued November 1, 1933, calling for completion of the inspection on or before January 1, 1934.

From the reports received from the Inspectors of Animals of all cities and towns in the Commonwealth, there were inspected on 25,042 premises: 208,852 head of cattle, 10,440 sheep, and 68,301 swine.

Meetings of Inspectors of Animals were held during the year at Boston, Greenfield, Pittsfield, and Worcester.

FINANCIAL STATEMENT

Appropriation for the salary of the Director, Chapter 162, Acts of 1934 (as adjusted by Chapter 213)	\$3,689.00
Expended during the year for the salary of the Director	\$3,688.88
Unexpended balance	0.12
	—————
Appropriation for personal services of clerks and stenographers, Chapter 162, Acts of 1934 (as adjusted by Chapter 213)	\$21,814.00
Transferred from the Appropriation for Extraordinary Expenses	560.00
	—————
Total amount appropriated	\$22,374.00
Expended during the year for personal services of clerks and stenographers	\$22,373.77
Unexpended balance	0.23
	—————
Appropriation for services other than personal, including printing the annual report, traveling expenses of the Director, office supplies and equipment and rent, Chapter 162, Acts of 1934	\$14,400.00
Expended during the year for the above mentioned purposes	\$12,765.29
Unexpended balance	1,634.71
	—————
Appropriation for personal services of veterinarians and agents engaged in the work of extermination of contagious diseases among domestic animals, Chapter 162, Acts of 1934 (as adjusted by Chapter 213)	\$14,400.00
Expended during the year for the following purposes:	\$86,760.00
Services of salaried agents	\$36,535.28
Services of per diem agents	42,462.75
Labor hired	104.00
	—————
Total expenditure	\$79,102.03
Unexpended balance	7,657.97
	—————
Appropriation for traveling expenses of veterinarians and agents, including the cost of any motor vehicles purchased for their use, Chapter 162, Acts of 1934	\$86,760.00
Supplemental Budget, Chapter 384, Acts of 1934	\$30,000.00
	2,500.00
	—————
Total amount appropriated	\$32,500.00

Expended during the year for traveling expenses of agents	\$32,202.42
Unexpended balance	297.58
	\$32,500.00
Appropriation for reimbursement of owners of horses killed during the present and previous years; travel, when allowed, of inspectors of animals, incidental expenses of killing and burial, quarantine and emergency services and for laboratory and veterinary supplies and equipment, Chapter 162, Acts of 1934	\$6,500.00
Expended during the year for the above mentioned purposes	\$4,787.30
Unexpended balance	1,712.70
	\$6,500.00
Appropriation for reimbursement of owners of tubercular cattle killed, as authorized by Section twelve A of Chapter 129 of the General Laws, as appearing in the Tercentenary Edition thereof, and in accordance with certain provisions of law and agreements made under authority of Section 33 of said Chapter 129 as so appearing, during the present and previous year, Chapter 162, Acts of 1934	\$350,000.00
Brought forward from 1933 appropriation	77,488.76
	\$427,488.76
Total amount appropriated	
Expended during the year for the following:	
14,962 head of cattle killed (Chapter 129, General Laws as amended)	\$369,940.71
25 head of cattle killed (physical cases)	565.00
	\$370,505.71
Total expenditure	56,983.05
Unexpended balance	
	\$427,488.76
Reimbursement of towns for inspectors of animals:	
Appropriation for the reimbursement of certain towns for compensation paid to inspectors of animals, Chapter 162, Acts of 1934	\$5,500.00
Brought forward from 1933 Appropriation	0.75
	\$5,500.75
Total amount appropriated	
Expended during the year for reimbursement of certain towns	\$5,028.40
Unexpended balance	472.35
	\$5,500.75

The average amount paid for cattle slaughtered under the provisions of Chapter 129, General Laws, as amended, was \$48.21 for registered purebred cattle and \$23.90 for grade cattle.

There has been received during the year for dog fees in accordance with Chapter 347, Acts of 1928, \$1.00; for Hemorrhagic Septicemia treatments at Brighton \$620.85; and for damage to a State car \$26.60.

Respectfully submitted,

E. L. GILLETT,
Director.